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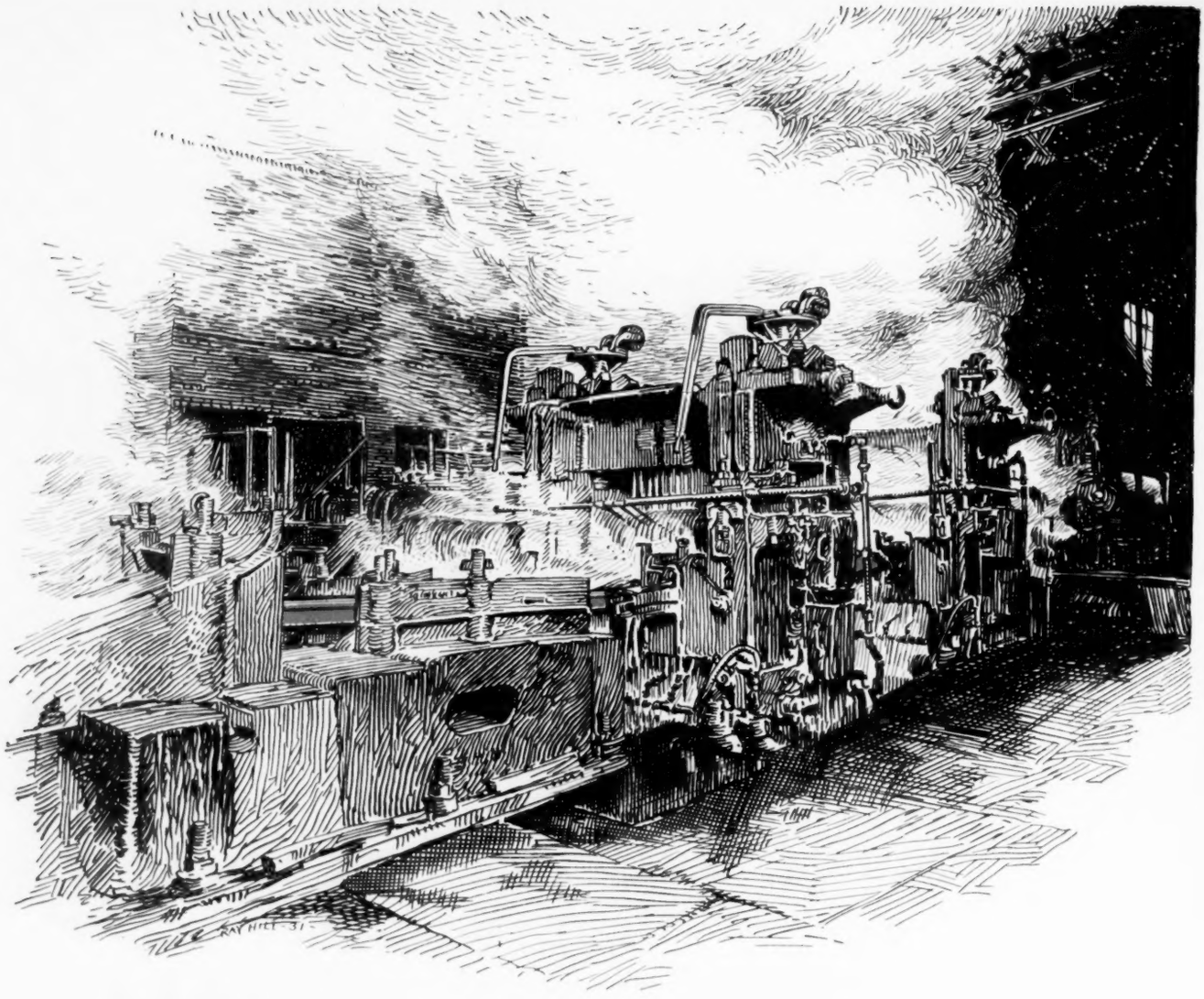
August 1, 1932



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CONTENTS

August 1, 1932

THE WEEK IN PERSPECTIVE 9

Unless Nation Goes Motorless Steel Is Certain to Benefit 11
Steel Losses in Second Quarter Up to $13.78 a Ton 13
June Exports Fall as Scrap Is Normal; Imports Down 15
Business News from Washington 16
Personals 17
Obituary 18
Here and There in Industry 18
Mirrors of Motordom 19

EDITORIAL—Has Integration Been Carried Too Far? 20
THE BUSINESS TREND 21

Ford Axle Shafts Heated and Forged Automatically 23
Porcelain Enamel and Steel Used in New Building 26
Iron Alloys Research Makes Good Progress in Second Year 27
Wheels for Doughnut Tires Are Arc Welded Stampings 28
Making the Most of Methods and Materials 30
Progress in Steelmaking 32
Scanning the Field of Technology 34
New Equipment 37

MARKET REPORTS AND PRICES 41-56
CONSTRUCTION AND ENTERPRISE 57
WHERE-TO-BUY DEPARTMENT 59
ADVERTISERS' INDEX 74

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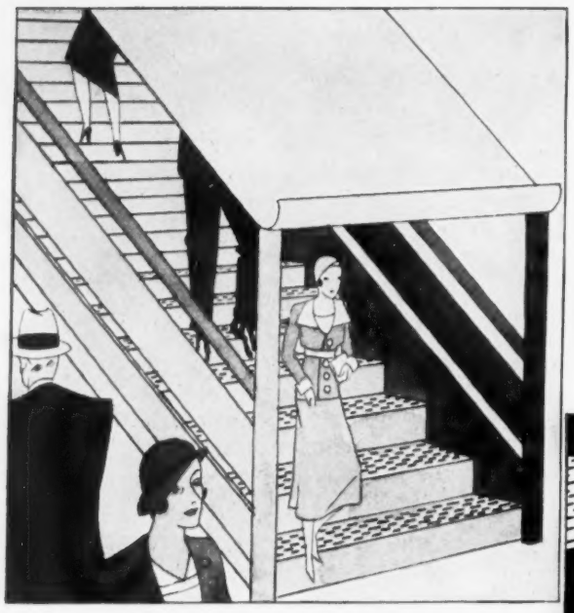

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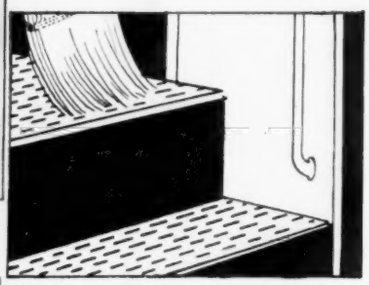

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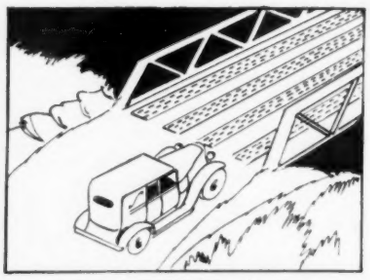

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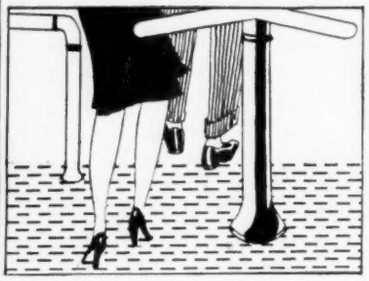

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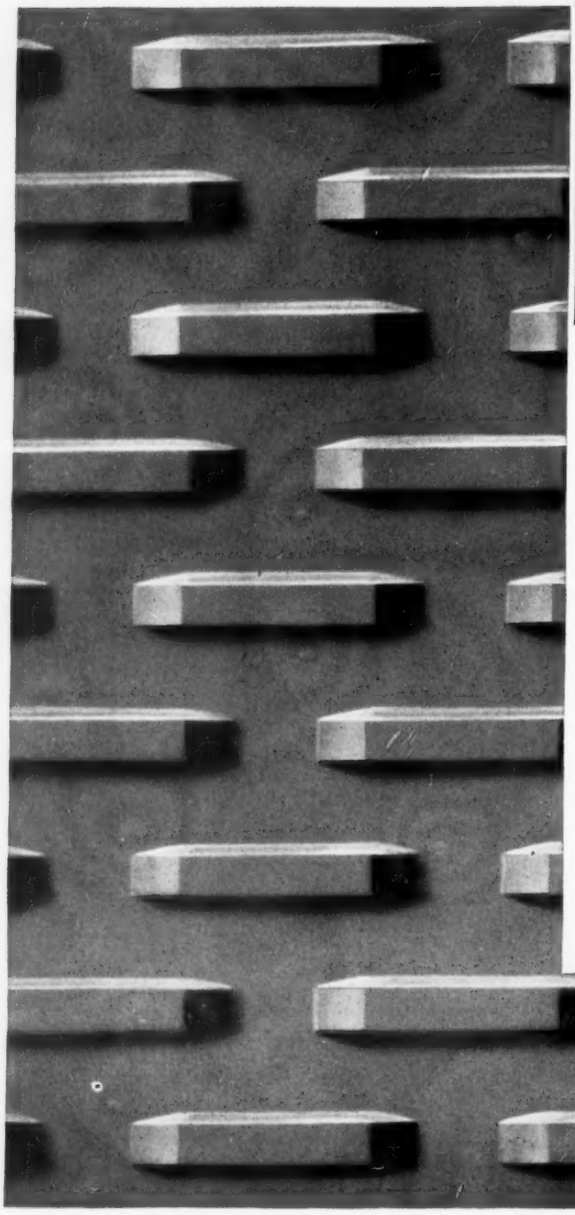

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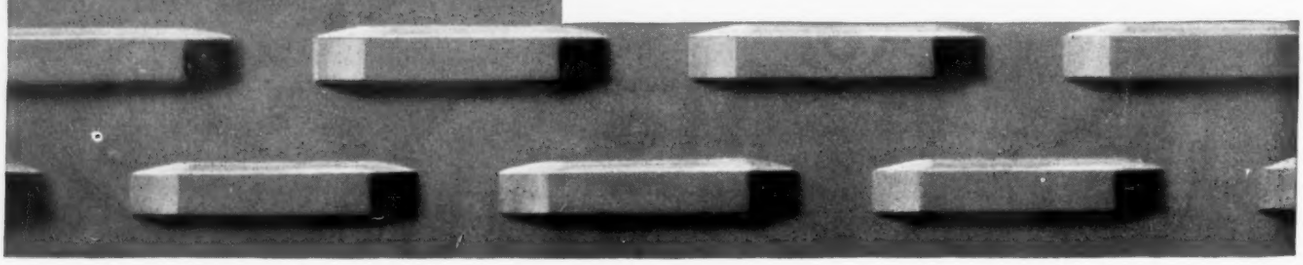


Volume 91 Number 5

STEEL

For forty-eight Years—IRON TRADE REVIEW

PRODUCTION • PROCESSING • DISTRIBUTION • USE

The Week in Perspective

TO EACH ton of steel they delivered in the second quarter producers attached a check for $13.78. Not visible, it was there nevertheless, for in making 3,200,000 tons the industry rolled up a deficit of almost $45,000,000, if the experience of ten important producers representing 72 per cent of capacity is typical (p.13). National Steel earned its common dividend, Republic improved its cash position, Jones & Laughlin, Wheeling, Otis and Inland whittled their losses slightly. But in general the industry sank deeper into the red as aggregate losses were heavier than in the first quarter and tonnage was lighter. Continuance of the full preferred dividend of the United States Steel Corp. stands out like a lighthouse, although prefaced with the same warning that preceded the disappearance of the Corporation's common dividend.

Vertical Setups Go Into Tail Spin

For the Steel corporation to have to dip into surplus for $5,900,000 to meet charges on its Lake Superior iron mining and shipping properties in a quarter that normally sees the ore movement at its height not only discloses how deeply the depression has cut but also opens up the subject of integration (p. 20). During the halcyon days, complete control of materials from ore and coal to finished product appeared attractive, indeed almost mandatory, but as carrying costs of idle, excess units mount envious eyes are cast upon the producer who chose to specialize. With equal force the pains of integration are now also wracking the consumer of steel who expanded above and below his principal sphere.

Sentiment Holds Supreme Over Deficits

Notwithstanding the cerise of second quarter reports the iron and steel markets preserve their equanimity (p. 41). Only in unrelated instances have bookings expanded, and operations hold closely to 17 per cent, yet the conviction that the worst is behind the industry is gaining converts . . . . On the Pacific coast (p. 55) this groundswell of improvement has appeared. . . . At Duluth the open hearths of the Minnesota Steel Co. are pouring (p. 49) for the first time since March 15 . . . . But Europe has not yet called the turn (p. 55), and on the Continent competition for what little business is offered is destructive. Black sheets are the brightest export line.

Exports Off as Japan Neglects Scrap

What appears to be an alarming decline in exports of iron and steel in June is, in reality, only the amputation of the bulge in May caused by Japan's foray into the scrap market (p. 15). Comparing June with April and last May, the

One view of 40,000 tons of structural steel erected by Post & McCord for 70-story RCA building in Rockefeller Center, New York. A sunken plaza goes in foreground. The Hegeman-Harris Co. is contractor

settlement is no more than seasonal. Imports, which also eased in June, in the first half of 1932 equalled 2.7 per cent of domestic production, only 1.5 per cent a year ago. Canada, whose business hangs in the balance, took 33 per cent of American exports in June.

Competitors Pinching Off Ford Sector

Henry Ford, who in February was willing to "risk everything" and "put up all" to revive business, is retrenching rapidly. While mindful that a depression upsets precedents, Detroit recalls (p.19) that Model T kept Ford plants busy 20 years making 16,000,000 units, Model A had a run of 3½ years and 4,500,000 units, while the new four and eight are subsiding after 4 months and an output of 250,000. This inspires talk that Ford will come to annual model changes. . . . Gear blanks on Ford rear axle shafts are heated and forged continuously and automatically in an ingenious electric furnace (p.23), one operator sufficing for an output of 1500 per hour.

Hose Is Paint Brush for Enamel House

Probably more inventive genius is being applied to the steel house than to any other product. In Chicago has been developed a method whereby porcelain enamel (p.26) is fused on steel ashlar sections 17¾ inches square which are attached to steel bars supported 18 inches apart on steel or wood studding. . . . Concrete Reinforcing Steel institute is also studying building, but how to ferret out foreign bars. To take test samples from domestic steel when alien steel also is used smacks of misrepresentation, the institute charges (p. 16) . . . . Seattle, under whose streets much foreign cast iron pipe has been laid, is talking (p. 55) an embargo.

Where the Surface Is Everything

A new 2-ply stainless steel made by a patented process from the composite ingot, the bond being such that the material can be deep drawn, stamped, welded, formed and polished, is announced (p.27) by a Middle West manufacturer. . . . A case as deep as 0.025 inch which is practically impervious to wear, the surface being glass hard with a brinell of 700 to 100, yet ductile, is said to be possible with a new method (p.28) of surface hardening for low carbon steel and malleable iron. . . . Pipe surfaces in storage are protected by a coating (p. 32) consisting of 90 per cent oil and 10 per cent of finely dispersed zinc chromate.

Research Knows No Depression

Only two years old is the Alloys of Iron Research, yet it has reviewed 3540 technical and scientific papers published since 1890 and prepared and filed 9419 abstracts (p.27). The first monograph is being published, another is completed, two more are partly written. . . . Of interest to engineers: A new gasket material (p.28) said to be unaffected by oil even at high temperatures. . Wheels for low-pressure balloon tires are made by arc welding (p.28) two pressed steel stampings, a 15-inch diameter type being made of No. 12 gage strip.

The VOICE of INDUSTRY

Communications appearing here do not necessarily reflect the opinion of* STEEL *or of its editors.

To the Editor:

If ever the time was important to encourage the buying movement today is that time. The eyes of the steel industry are focused upon the attitude of the larger companies in regard to proceeding with the improvements contemplated in the various steel producing districts.

How much faith have these larger units in the return of business; in the maintenance of a sound financial structure in this country; in the present administration in Washington; and in themselves and in the captains of their industry?

Steelmakers are holding in abeyance large plans for replacing wornout equipment. All of these plans were carefully developed. What is to become of the steel industry if there is too much hesitancy in carrying out such plans at such a time as this? To say that the present financial situation is so grave as to force any of our large steel companies to forego such remodeling and revamping is beside the question. Few if any, of the large steel companies are so situated that these necessary expenditures cannot be made.

We stand today at the cross-roads. Is the steel industry to build its future along the by-way that leads to lessened efficiency and higher cost because of the fact that production today is at a sub-normal level? Or shall the steel industry proceed along the main highway of progress and attainment showing the way to other industries by such leadership and by such a demonstration of their belief and confidence in the future prosperity of this country? We do not ask this question in any flippant sense, nor do we expect the steel companies to give a definite answer as to their plans for the immediate future. We do, however, make this appeal to the directing minds of all steel companies believing that too much conservation in such a day as this may invite catastrophe. The coming of to-morrow may be too late to help turn the tide. We urge upon the steelmakers, as a whole, a conservative plan of putting their houses in order to reap the harvest of a non-far distant future. It is a time for faith and action dependent upon such faith.

"CHAIRMAN-OF-THE-BOARD,"
Pennsylvania

"Suppose we put good, fresh American brains into the solving of the problem of helping the unemployed without pauperizing them."

"Suppose we all whimpered less and smiled more."

—A sticker used on correspondence by GULF STATES STEEL CORP., Birmingham, Ala.

Unless Nation Goes Motorless, Steel Is Certain To Benefit

IF THERE is any salient, self-evident, Q. E. D. proposition in an analysis of the future of the iron and steel industry it is that the motor car is here to stay.

Radical changes in design are a lively possibility, but certainly for the next decade—and probably through the lifetime of persons now living—no other form of transportation is likely to achieve the universality of the automobile, truck and bus.

In fact, there is a greater possibility that other metals will supplant iron and steel as the base of automobile manufacture than there is of the automobile itself being displaced—which for the iron and steel industry would have the same effect.

Aluminum, beryllium, magnesium and other metals whose chief merit is lightness are in the test tube and laboratory, but the matter of price thus far has proved an insurmountable barrier and there is no immediate indication of any reversal of this situation.

Only recently, when Hudson-Essex decided to proceed with the manufacture of a car lighter in weight than anything now on the road and competitive in price with Ford and Chevrolet, its engineers explored every possible avenue for attaining the joint objective of light weight and low price, and staked their fortunes on steel.

What has happened to the automobile industry since 1929? Plenty. But the ravages of depression are less evident on the automobile industry than the other major form of transportation—the railroads.

From 1929 to 1931 production of passenger cars and trucks in the United States declined from 5,400,000 units to 2,400,000, or 56 per cent. Incidentally, this coincides with the shrinkage in the output of steel ingots, of which the auto industry is the second largest consumer.

From 1929 to 1931 orders for new freight cars receded from 106,100 units to 10,700, or 90 per cent. But, it may be said, the life of a freight car is so much longer than that of an automobile that freight car loadings afford a fairer comparison. Then, by the same token, the consumption of gasoline is a more accurate measure of the use of motor transportation.

The movement of freight, which totaled 52,800,000 cars in 1929, was off 29 per cent to 37,600,000 cars in 1931. Consumption of gasoline, on the other hand, increased 15 per cent from 14,677,000,000 gallons to 16,719,000,000.

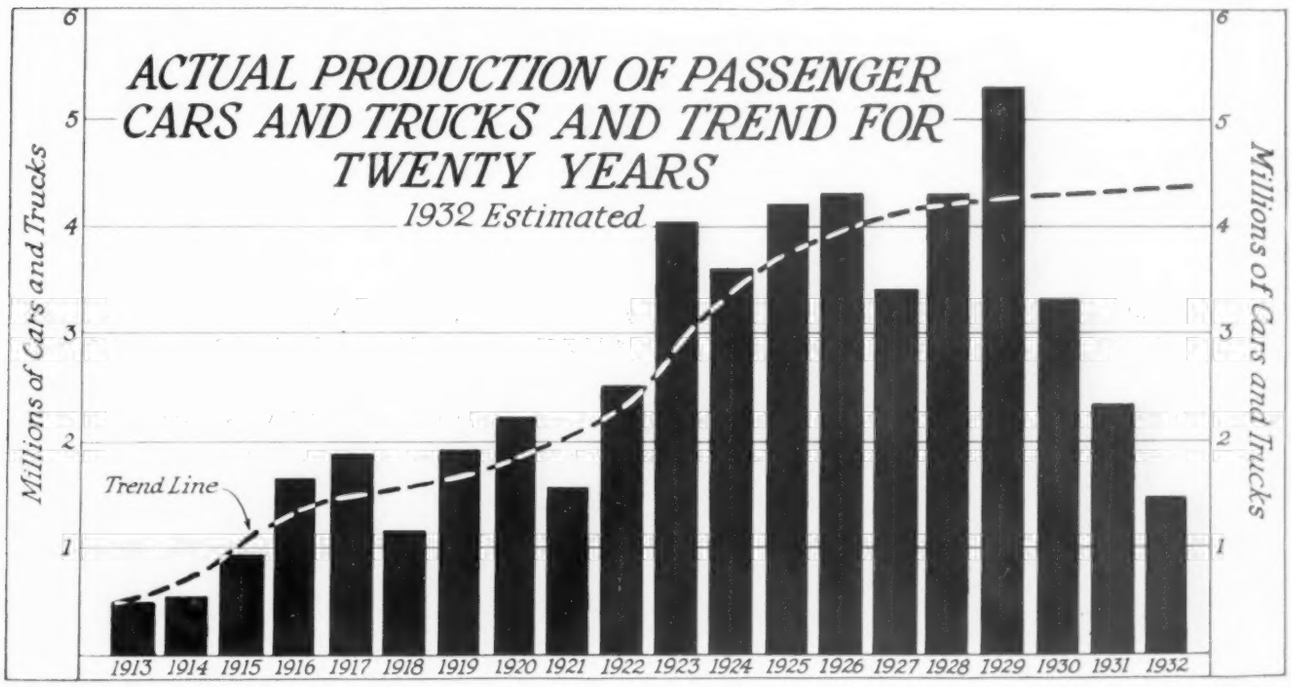
Parenthetically, it should be stated that even demand for gasoline began to flatten out early in 1932, as the country went into the third year of depression. In the first four months the decline from the like period of 1931 was 2.75 per cent, but in the same period car loadings fell 14 per cent.

Thus, from the overall standpoint, while the railroads and the steel and other industries were progressively

Gasoline Consumption Curve Rises Steadily 13 Years

By American Petroleum institute

Year	No. of automobiles registered at end of year	Domestic consumption of motor fuel (barrels)
1919	7,565,446	88,648,000
1920	9,231,941	108,945,000
1921	10,464,715	116,840,000
1922	12,239,853	137,770,000
1923	15,092,177	175,088,000
1924	17,595,373	194,164,000
1925	19,937,274	232,182,000
1926	22,001,393	267,871,000
1927	23,133,243	305,017,000
1928	24,493,124	338,027,000
1929	26,501,443	380,558,000
1930	26,523,779	398,075,000
1931	25,814,103	398,077,000
1932 (4 mo.)	.....	109,950,738


ACTUAL PRODUCTION OF PASSENGER CARS AND TRUCKS AND TREND FOR TWENTY YEARS
1932 Estimated
Millions of Cars and Trucks
Millions of Cars and Trucks
Trend Line
1 2 3 4 5 6
1913 1914 1915 1916 1917 1918 1919 1920 1921 1922 1923 1924 1925 1926 1927 1928 1929 1930 1931 1932

HERE the actual production of passenger automobiles and trucks for the 20 years ended with 1932 is plotted, and a trend line adjusted for a declining rate of expansion in population is computed. In 1930 "normal" production would have been about 4,200,000 units; actually it was 3,356,806. In 1931 the "normal" was about 4,300,000 units, and actual almost precisely 2,000,000 less. For 1932 output should have been close to 4,400,000 units, but on the basis of the first six months the year will do well to turn in a total of 1,500,000. Thus a deficit of 5,750,000 cars and trucks, or about 13 months of production at the average rate of 1929, has piled up

Statistical History of the Automobile Industry

Compiled by National Automobile Chamber of Commerce

	Production	Net Exports	Domestic Market	Registration	Unadjusted Scrapped	Total Scrapped or Replacements
1913	485,000	26,397	458,603	1,258,062	144,541	117,424
1914	569,054	25,469	543,585	1,711,339	90,308	131,087
1915	969,930	63,737	906,193	2,445,666	171,866	321,415
1916	1,617,708	79,414	1,538,294	3,512,996	470,964	397,206
1917	1,873,949	80,157	1,793,792	4,983,340	323,448	141,843
1918	1,170,686	47,171	1,123,515	6,146,617	39,762	196,195
1919	1,933,595	82,613	1,850,982	7,565,446	432,153	408,410
1920	2,227,349	176,185	2,051,164	9,231,941	384,669	353,939
1921	1,616,119	60,135	1,555,984	10,464,715	323,210	482,829
1922	2,544,176	126,589	2,417,587	12,239,853	642,449	794,956
1923	4,034,012	234,224	3,799,788	15,092,177	947,464	877,143
1924	3,602,540	292,522	3,310,018	17,595,373	806,822	1,151,381
1925	4,265,830	427,989	3,837,841	19,937,274	1,495,940	1,670,337
1926	4,300,934	392,080	3,908,854	22,001,393	1,844,735	1,824,230
1927	3,401,326	465,749	2,935,577	23,133,243	1,803,727	2,110,214
1928	4,358,748	582,165	3,776,583	24,493,124	2,416,702	2,516,868
1929	5,358,420	733,066	4,625,354	26,501,443	2,617,035	2,772,838
1930	3,355,986	405,006	2,950,980	26,545,281	2,907,142	*2,893,618
1931	2,389,738	240,821	2,148,917	25,814,103	2,880,095	*2,148,181

*Some of these may not have been actually scrapped but kept in storage

Net exports are exports minus imports

Adjusted figure for scrapping and replacement is result of splitting annual statistics in order to give effect of license transfers from old cars to new ones

sinking further into the mire of depression in 1930 and 1931, the country was using its motor vehicles more intensively. In fact, as the accompanying table discloses, from 1919 to 1931 inclusive there was not a year in which the consumption of gasoline did not expand.

It is fair to assume that motor trucking declined in 1930 and 1931. True, the depression probably tended to divert the smaller requirements of consumers from the railroads to trucks and there is the impetus of a new industry to reckon with, yet it would appear that the total movement of freight by truck in 1930 and 1931 was no greater, and presumably not so great, as in 1929.

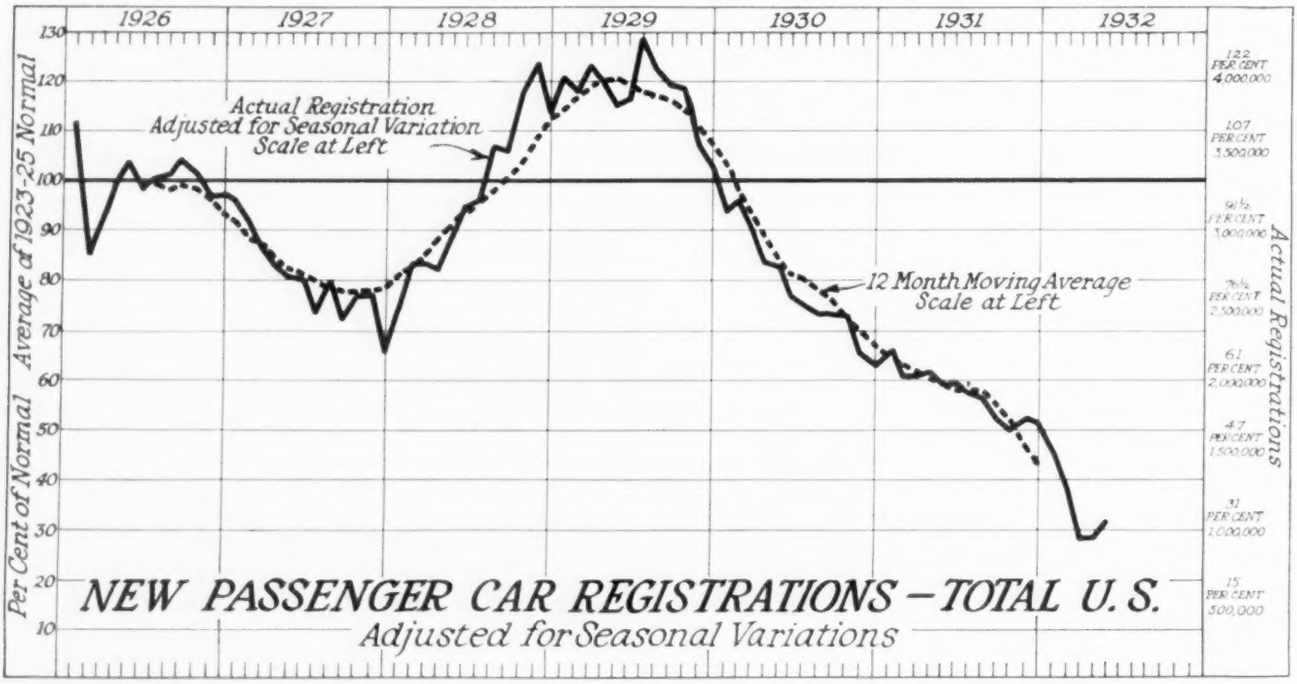
The obvious deduction, then, from the increased demand for gasoline is that sales to passenger car owners accounted for the rise, and that the hold of the automobile upon the public imagination could not be broken even by two years of widespread unemployment and curtailed income. If true for lean years, is not the promise bright for good ones?

For the iron and steel industry there is more than a sentimental aspect to this steady growth in the market for gasoline—a growth which can scarcely be said to be vitiated by so small a decline as 2.75 per cent in the first four months of 1932.

At a time when the use of motor vehicles was sustained, the manufacture of new units was diminishing. To recapitulate: From 1929 to 1931 output of new vehicles declined 56 per cent, consumption of gasoline increased 15 per cent. More intensive use, hastening the tow to the scrap yard and indicating pentup demand for new equipment, is a conclusion.

From 1926 to 1931 inclusive the increase in registration of motor vehicles in the United States was from 22,001,393 to 25,814,103, or exactly 3,812,710. Meanwhile, in this 6-year period the number of registrations of new cars was 19,712,569. Indicating that in this period 15,799,859 units were junked or otherwise put out of commission.

This is an average of 2,633,309 cars per year. In 1931 actual production was only 2,389,783 units, and on the basis of the first half of 1932 output will not run much above 1,500,000. There is statistical warrant, therefore, for stating that despite an increase in the consumption



FROM 1926 forward, taking the average of 1923, 1924 and 1925 as 100 or normal, passenger car registration in the United States has been in arrears more than it has been in surplus. Except for a few months in 1926 and from the third quarter of 1928 through all of 1929, the line indicating registrations has been below the normal. The heavy line, indicating actual passenger car registrations, has been adjusted for seasonal variations. The broken line is a 12-month moving average. Data for this chart were supplied by statistical department, sales section, General Motors Corp.

of gasoline and an apparent broader use of automobiles more were taken out of commission in 1931 and will be in 1932 than were manufactured in those two years.

For a detailed study of this relation of new car production, registrations and scrapping the attached table by the National Automobile Chamber of Commerce, based upon an average car life of 7¼ years, is submitted as evidence. This should be a conservative picture, as the General Motors Corp. figures car life at 6 years—3 in the hands of the first buyer and the remaining 3 in several subsequent purchasers.

As in steel, and partially responsible for it, a tremendous deficit in passenger cars and trucks has been piling up since 1929. Statisticians of the motor industry incline to the theory that a number of factors, among them a declining rate of expansion of population, tend to flatten out trend lines into S-curves.

In the chart on page 11 are plotted the annual output of passenger cars and trucks from 1913 forward, with 1932 estimated at somewhat less than 1,500,000 units, and a trend line which discloses that in 1930, 1931 and 1932 a deficit of about 5,750,000 units has accumulated. This is greater than the total production in the peak year of 1929, which was 5,360,000 cars and trucks.

Deficit Equals 13 High Months

In other words, the automobile industry has before it about 13 consecutive months at the peak rate of 1929 to neutralize the deficit, which coincides with the shortage in steel ingots, as depicted in STEEL, May 30.

Scanning the progress of the automobile industry (including both passenger cars and trucks for the United States alone) it is interesting to note that 1913-19 apparently comprised one cycle. It was in 1919 that the trend line tended to flatten out, and at this juncture the introduction of time payments plus postwar prosperity inaugurated another cycle, which lost much of its buoyancy beginning with 1928 but continues to rise on a slower scale.

Supplying the requirements indicated by the trend line, adjusted on a conservative basis for the slower rate of growth of population, would keep the industry busy for the next few years at the rate of 1926 or 1928, each of which ran up a total of slightly over 4,300,000 units, compared with the record 5,360,000 in 1929. As with steel, the bulge of 1929 may have been making up the deficiency of 1927 and only swelling slightly above normal for the year.

Consideration of passenger cars alone discloses that on the basis of the average of 1923, '24 and '25 being normal, the industry since 1926 has been below the normal line more than above.

Steel Losses in 2nd Quarter Up to $13.78 Ton of Ingots

SINKING deeper into the red, the iron and steel industry in the second quarter piled up a deficit that approximated $45,000,000, after all charges but before any preferred dividend, which was an increase of $12,000,000 or 37 per cent over the first quarter.

This estimate of aggregate loss by the industry is based upon actual reports from ten producers representing 72 per cent of ingot capacity. Reduced to an ingot basis, the average loss per ton in the second quarter was $13.78, or more than one-half the average cost. In the first quarter, deficits figured $7.72 per ton of ingots.

Of the leading producers reporting thus far, only the National Steel Corp. turned in a net profit, incidentally earning fractionally more than the requirement for its present common dividend rate.

The showing of the United States Steel Corp. was aggravated by the almost entire absence of an iron ore movement, compelling $5,900,000 to be charged off for its mining and lake shipping properties which ordinarily would have been absorbed readily. Excluding this extraordinary situation, the deficit of the Steel corporation would have been approximately $14,500,000, compared with $13,200,000 in the first quarter.

By small sums the second quarter deficits of the Republic Steel Corp., Colorado Fuel & Iron Co. and Follansbee Bros. Co. exceeded those of the first quarter. Slight reductions were effected by the Jones & Laughlin Steel Corp., Inland Steel Co., Wheeling Steel Corp. and Otis Steel Co.

□ □ □

U. S. Steel Corp. Pays Dividend on Prefered

CONTINUANCE by the United States Steel Corp. of the 7 per cent dividend on its preferred stock, despite a resort to surplus to pay it, is regarded as an encouraging sign, partly mitigating a further heavy deficit reported for the quarter ended June 30.

After depreciation, depletion and bond interest, the deficit for the second quarter was $14,565,013, a slight increase over the deficit of $13,218,549 in the first quarter of 1932 and compared with a net of $230,389 in the second quarter of 1931.

The results from all operations, after allowance of $9,872,733 for depletion, depreciation and obsolescence, fell short by $20,452,173 of earning anything for the preferred.

Nothing has been earned for the preferred stock since the third quarter of 1931. Full payment of the preferred dividend for the year ended June 30 and covering losses from operations required a draft of $60,008,670 on surplus in that period. In the same period, common dividends were declared to the extent of

One Profit, Nine Deficits Among Leading Producers

All Deficits, Except National Steel Corp.

	Second quarter 1932	First quarter 1932	Annual steel ingot capacity gross tons
United States Steel Corp.	$20,452,173	$13,218,549	27,630,000
Bethlehem Steel Corp.	4,671,260	3,685,769	9,457,000
Republic Steel Corp.	2,744,826	2,476,293	4,848,000
Jones & Laughlin Steel Corp.	2,110,851	2,399,089	3,420,000
National Steel Corp. (net profit)	560,999	592,799	2,232,000
Inland Steel Co.	619,982	820,541	2,000,000
Wheeling Steel Corp.	568,204	628,623	1,500,000
Colorado Fuel & Iron Co.	795,190	399,278	840,000
Otis Steel Co.	459,009	701,162	828,000
Follansbee Bros. Co.	314,902	301,196	200,000
Net loss of above companies	$32,175,398	$24,037,701	48,491,000
Total loss for industry calculated on actual reports for 72 per cent of capacity	$44,689,303	$33,385,696	.....
Ingot production, tons	3,242,555	4,326,214	.....
Loss per ton of ingots	$13.78	$7.72	.....

Steel Corporation's Quarterly Report Summarized

	Second Quarter 1932	First Quarter 1932	Second Quarter 1931
Total earnings	†$ 3,362,736	†$ 1,136,607	$13,817,524
Less depreciation, depletion, etc.	9,872,733	†10,740,321	12,211,569
Net income	†13,235,469	†11,876,928	1,605,955
Less Bond interest	1,329,544	1,341,621	1,375,566
Balance	†14,565,013	†13,218,549	230,389
Add special income			7,160,966
Minus special write-off	5,887,160		
Total	†20,452,173	†13,218,549	7,391,355
Dividends:			
Preferred	6,304,919	6,304,919	6,304,919
Common			8,704,292
Surplus	†26,757,092	†19,523,468	†7,617,856

†Deficit.

$13,054,878, resulting in a reduction of surplus since July 1, 1931, of $73,063,548.

"In view of this very large draft upon surplus and current available resources within the last year, it is apparent that improvement in the business and earnings must in the future determine dividend action on the preferred stock," states the Corporation.

An unusual situation arises because of the extremely depressed condition of the iron ore trade. The proportion of overhead expenses of the Lake Superior iron ore properties and Great Lakes transportation service which normally is included in the value of the season's production of ore carried in inventory but which because of the extreme curtailment in tonnage of ore to be mined and shipped in 1932 is not so applied is $5,887,160. Of this sum, $4,819,317 represents taxes.

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Bethlehem Dividend Out As Showing Worsens

BETHLEHEM STEEL CORP. reported net loss of $4,671,266 in the quarter ended June 30, compared with $3,685,769 in the quarter ended March 31, and a net of $1,452,743 in the second quarter of 1931.

Having passed its preferred dividend, the total deficit for the second quarter stands at $4,671,266. Because in the first quarter a preferred dividend totaling $1,645,000 was declared, the total deficit for that period was $5,330,769.

For the first half of 1932, the net loss was $8,357,035 after charges and taxes, compared with net income of $3,394,685, equal to $3.39 a share on the preferred in the first half of 1931.

Commenting on the omission of the preferred dividend, E. G. Grace, president, said that while Bethlehem has ample cash reserves, the action was unanimously approved by directors as the conservative thing to do.

The value of unfilled orders on hand June 30 was $28,724,004, according to Mr. Grace, or $7,000,000 less than at the end of the previous quarter and $29,000,000 below June 30, 1931.

Operations of Bethlehem averaged 18 per cent of capacity during the second quarter, compared with 23.4 per cent in the first quarter, and 41.5 per cent in the second quarter of 1931. Present operations are at the rate of 13 per cent.

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National Steel Corp. Earns Common Dividend

National Steel Corp., Pittsburgh, in the second quarter earned 26 cents a share or more than its common dividend requirement of 25 cents for the quarter.

Net profit, after all charges and federal income tax for the second quarter, totaled $560,999, compared with $592,799 in the first quarter. Profit before interest and federal income tax in the second quarter was $1,199,236, against $1,239,094 in the first quarter.

Net profit for the first half of 1932 was $1,153,799, compared with $3,459,376 for the corresponding 1931 period.

"The company is in a strong condition, with ample cash and no bank loans," declared E. T. Weir, chairman of the board.

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Republic Steel Improves Its Cash Position

Republic Steel Corp., Youngstown, O., reports net loss from operations in the second quarter of $2,669,826, and after the payment of the guaranteed dividend on the Trumbull-Cliffs Furnace Co. stock, a total loss for the quarter of $2,744,826. In the first quarter of 1932 the total net loss was $2,476,293.

However, a steady improvement in the cash position and current asset ratio of the corporation is shown. On June 30, cash totaled $8,795,529, compared with $8,699,745 on Dec. 31, 1931. The ratio of current assets to current liabilities on June 30 was 4.24 to 1, compared with 4.07 to 1 on Dec. 31 last.

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Jones & Laughlin Net Loss Is Reduced $700,000

Jones & Laughlin Steel Corp., Pittsburgh, and subsidiary companies, report net loss of $2,697,990 after depreciation, bond interest and preferred dividends in the second quarter. This compares with net loss of $3,426,582 in the first quarter and a net loss of $923,830 in the second quarter of 1931.

Operating loss was $832,732 in the second 1932 quarter. Depreciation totaled $1,167,876 and preferred dividends to the amount of $587,139 were paid. In addition to bond interest, this left a total net loss of $2,697,990. In the first quarter an operating loss of $1,117,003 was reported.

Six months net loss of $6,124,572 is based on an operating loss of $1,949,735 for that period. The first six months of 1931 showed an operating profit of $3,121,014 but a net loss of $2,718,625.

A dividend of 75 cents payable Oct. 1 to record Sept. 13 has been declared by the company on its 7 per

(*Please turn to Page 49*)

Bethlehem Steel Corp's Financial Showing Compared

	Second Quarter 1932	First Quarter 1932	Second Quarter 1931
Total income of the corporation and its subsidiary companies	$ 271,174	$1,431,657	$6,394,057
Less interest charges	1,706,129	1,794,039	1,811,039
Balance	*$1,434,955	*$ 362,282	$4,583,018
Less provision for depletion and depreciation	3,236,311	3,323,387	3,130,275
Net income for the period	*$4,671,266	*$3,685,769	$1,452,743
Less dividend declared on preferred stock		1,645,000	1,750,000
Deficit	$4,671,266	$5,330,769	$ 297,257

*Deficit.

June Exports Fall as Scrap Is Normal; Imports Also Off

WASHINGTON—After three consecutive months of improvement, exports of iron and steel declined 35 per cent in June, to 52,081 gross tons. Owing to the fact that imports also shrank, to 34,494 tons or 13 per cent below May, a favorable balance of trade was maintained.

Also for the first half-year a favorable balance has been maintained, exports totaling 321,755 gross tons and imports 209,406 tons. In the first half of 1931, exports were 565,261 tons and imports, 233,042 tons, according to the iron and steel division, department of commerce.

While few products escaped contraction in June, the decline in scrap was most marked, being 21,837 tons compared with 45,000 tons in May. It was the bulge in scrap exports that was largely responsible for the sharp rise in the May total of exports, and now the settlement of this product to normal proportions has caused the letdown.

Reductions in foreign demand for skelp, black sheets, strip, line pipe, and barbed wire and woven wire fencing also were marked. A slight gain was shown by tin plate, steel bars, rails and sheet piling.

In June slightly less pig iron, ferromanganese, concrete reinforcing bars, sheets, skelp and structural shapes moved into the country, while modest gains were registered by merchant steel bars, barbed wire, hoops and bands, and rails.

By countries, Belgium was the biggest shipper to the United States in June with 8755 tons. A close second was the United Kingdom with 6937 tons. The Netherlands shipped 6375, Germany 4936, British India 2515, Canada 2054, and France 2038.

Over the elapsed six months of 1932, imports totaled 209,406 gross tons or 23,536 tons (10 per cent) less than in the equivalent period of 1931. In comparison with domestic production, however, the 1932 trade was almost twice as significant as that of 1931—imports in the earlier half-year representing 1.5 per cent of domestic steel ingot output, against 2.7 per cent for the 1932 period.

Canada, now much in the limelight because of the possibility of the Imperial Economic conference diverting the dominion's requirements to English producers, in June took 13,633 gross tons of iron and steel products from the United States or almost 33 per cent of all exports. In the first half of 1932 Canada bought 83,143 tons from the United States, compared with 272,342 tons in the first half of 1931.

FOREIGN TRADE OF UNITED STATES IN IRON AND STEEL

Gross Tons

	1932		1931	
	Imports	Exports	Imports	Exports
Jan.	31,053	40,660	41,628	92,719
Feb.	26,738	40,492	28,045	91,161
March	41,031	49,927	40,402	109,324
April	36,339	58,118	47,872	101,434
May	39,751	80,477	37,176	95,046
June	34,494	52,081	37,819	75,577
(6 mo.)	209,406	321,755	233,042	565,261
July	.....	.....	37,190	84,465
Aug.	.....	.....	30,139	73,338
Sept.	.....	.....	30,966	69,778
Oct.	.....	.....	29,401	59,335
Nov.	.....	.....	34,658	59,556
Dec.	.....	.....	25,812	57,263
Total	.....	.....	421,108	968,996

ORIGIN OF JUNE IMPORTS

Gross Tons

	Iron ore	Pig iron	Manganese ore	Ferromanganese
Norway	15,172	102	.....	234
Spain	.....	.....	.....	.....
United King.	.....	6,034	.....	504
Canada	42	.....	.....	1,674
Chile	43,304	.....	.....	.....
Soviet Russia	16,450	.....	3,519	.....
Netherlands	.....	5,815	.....	.....
Sweden	.....	138	.....	.....
British India	.....	2,515	.....	.....
Germany	.....	.....	.....	477
Total	74,968	14,604	3,519	2,889

	Steel ingots	Steel scrap	Steel bars	Cast iron pipe
Belgium	4	.....	1,631	.....
Germany	4	.....	692	.....
United King.	2	.....	11	.....
Canada	1	234	.....	.....
Dom. Rep.	.....	11	.....	.....
France	.....	.....	674	.....
Netherlands	.....	.....	2	.....
Sweden	10	.....	149	.....
Czechoslovakia	.....	.....	4	.....
Japan	.....	.....	.....	2
Total	21	245	3,163	2

IMPORTS OF IRON AND STEEL PRODUCTS INTO THE UNITED STATES

Gross Tons

Item	June 1932	May 1932	June 1931
Pig iron	14,604	16,819	9,333
Sponge iron	.....	.....	.....
Ferromanganese, spiegel (1)	2,889	3,047	1,898
Ferrochrome (2)	25	22	25
Ferrosilicon (3)	.....	12	36
Other ferroalloys	.....	100	180
Scrap	245	1,950	1,341
Ingots, blooms, billets, etc.	21	34	1,622
Concrete bars, etc.	3,428	4,508	3,771
Hollow bar, drill steel	44	54	144
Merchant steel bars	3,173	2,076	4,128
Iron slabs	11	.....	.....
Iron bars	5	22	214
Wire rods	457	388	564
Boiler and other plates	178	9	2
Sheets, skelp and sawplate	1,038	1,975	1,856
Tin plate	43	392	7
Structural shapes	2,044	2,905	6,338
Sheet piling	.....	.....	.....
Rails and fastenings	144	513	172
Cast iron pipe, fittings	2	.....	1,112
Welded pipe	194	252	689
Other pipe	127	382	361
Barbed wide	1,759	909	857
Round iron, steel wire	199	183	280
Telephone, telegraph wire	.....	5	4
Flat wire, strip steel	56	85	25
Wire rope and strand	197	217	206
Other wire	86	69	32
Hoops and bands	2,382	1,989	1,633
Nails, tacks, staples	998	751	860
Bolts, nuts, rivets	16	10	6
Horse and mule shoes	7	1	.....
Castings and forgings	122	72	123
Total	34,494	39,751	37,819

(1) Manganese content.
(2) Chromium content.
(3) Silicon content.

EXPORTS OF IRON AND STEEL PRODUCTS FROM THE UNITED STATES

Gross Tons

Item	June 1932	May 1932	June 1931
Pig iron	235	191	764
Ferromanganese, spiegel	.....	.....	1,036
Scrap	21,837	45,000	10,490
Ingots, blooms, billets slabs, sheet bars	19	690	36
Iron bars	97	84	133
Steel bars	1,397	1,227	2,921
Alloy steel bars	77	161	87
Wire rods	693	1,048	2,412
Boiler and other plates	424	812	4,495
Skelp, iron or steel	1,830	4,200	3,534
Iron sheets, gal.	133	98	160
Steel sheets, gal.	1,452	2,194	5,879
Steel sheets, black	4,772	5,091	7,645
Iron sheets, black	246	296	476
Hoops, bands strip	883	2,208	1,695
Tin, terne plate	2,877	2,212	5,413
Water, oil, gas and other tanks, except lined, etc.	122	72	535
Shapes, not fabricated	1,624	1,285	7,456
Shapes, plates, fabricated	1,080	1,032	1,925
Metal lath	350	114	108
Frames, sashes, sheet piling	1,328	388	227
Rails	2,108	1,171	1,699
Rail fastenings	446	256	729
Boiler tubes, seamless and welded	387	115	463
Casing and oil-lined pipe, seamless and welded	1,077	2,049	1,326
Seamless black pipe, other than casing (1)	43	27	.....
Malleable-iron screwed pipe fittings	143	245	340
Cast-iron screwed pipe fittings	33	60	89
Cast-iron pressure pipe and fittings	97	113	2,502
Cast-iron soil pipe and fittings	176	267	269
Welded black and galvan. steel pipe	1,838	2,506	4,292
Welded black and galvanized wrought-iron pipe	177	449	638
Riveted pipe, fittings (1)	49	32	.....
Plain black or galvanized iron or steel wire	468	696	964
Barbed wire, woven fencing	1,384	1,732	1,705
Woven-wire screen cloth	51	67	63
Wire rope	67	135	194
Insulated iron or steel wire and cable	3	3	24
Other wire, manufactures	182	165	335
Wire nails	483	496	616
Tacks	34	44	48
Other nails, including staples	251	272	272
Bolts, machine screws, nuts, rivets, and washers	193	205	344
Iron castings	295	242	259
Steel castings	145	151	114
Car wheels and axles	148	285	370
Horseshoes	2	1	4
Forgings	325	290	551
Total	52,081	80,477	75,577

(1) Not shown prior to 1932.

The Business Week In Washington

FEDERAL trade commission has finished its field work in connection with an investigation it is making as the result of a senate resolution relating to the letting of contracts for construction of government buildings. A report covering this is being prepared.

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The temporary tariff duty of 33-1/3 per cent ad valorem into Great Britain on certain iron and steel products, except bandsaw steel strip more than 4 inches wide, has been continued until Oct. 25, according to a cablegram from Assistant Commercial Attache Fox at London.

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The tariff commission has started an investigation of the cost of production of all kinds of pins.

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American Chain Co., Bridgeport, Conn., has been granted a refund of $158,108.48 for 1918 and $110,128.87 for 1919 by the bureau of internal revenue for over-assessments of income and profits taxes.

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President Hoover has announced he will receive members of the recent New England 5-day a week conference. No date has yet been set for the meeting.

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Secretary of Agriculture Hyde has apportioned to the various states $120,000,000 for road construction under recent legislation.

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The department of labor has gone on a 5-day week. This is the only government department to adopt this plan.

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Treasury department announces drawback allowances on galvanized plain and barbed wire and galvanized woven wire fencing manufactured by Northwestern Barb Wire Co., Sterling, Ill., with imported zinc. Drawback is also announced on safety razor blades manufactured by Marathon Razor Blade Co. Inc., Irvington, N. J., from imported cold rolled steel.

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Simplified practice recommendation on eaves trough, conductor pipe, elbows and fittings has been extended for one year without change. This standard has been in effect since July 1, 1925.

If You Want To Write to Your Congressman—

CONGRESSMEN could work on many things other than ways and means to bring about more tax burdens," declares William E. Dunn Jr., secretary, Southern Metal Trades association, Atlanta, in an open letter which he proposes be sent to all members of congress.

For instance, states Mr. Dunn, there is the case of the Southern Railway building in Washington; one watchman sufficed for the railway after it evacuated the building but when the government took it over 28 watchmen were promptly put on.

One senator's secretary, for a trip to New York, charged up $20 for two nights at a hotel and $13.50 for meals for two days. Two agents of a senate investigating committee on a 27-day trip charged up $138 for Pullman fare, also $310.50 or $12 a night hotel bill for the entire 27 days, and meals at an average of $12 per day.

WHERE RAIL AND RIVER MEET: At this transfer plant at Colona, Pa., on the Ohio river 23 miles below Pittsburgh, coal can be hauled from barges to gondolas at the rate of 4000 tons per 24 hours. Capacity of the bucket is 8 tons, of the hopper 150 tons per hour, hoisting speed is 400 feet per minute, from the pool level to boom is 91 feet, on nearby tracks 52 full and 52 empty cars can be stored. This plant, built by Pittsburgh & Lake Erie at a cost of $450,000, is expected to expedite movement to Cleveland, Youngstown and Lorain, O.

Canadian Steel and Iron Output Off in June

Toronto, Ont.—Output of steel ingots and direct steel castings in Canada in June totaled 18,116 gross tons, compared with 22,239 tons in May. The first half total was 180,486 tons, against 461,877 tons a year ago.

Canadian production of pig iron in June was 8163 gross tons, compared with 13,359 tons in May. June production included 6894 tons of basic and 1269 tons of malleable. Because one furnace at Sault Ste. Marie, Ont., was blown out and one at Hamilton, Ont., was banked, no stack was active in Canada June 30.

Ferroalloys output in June was 893 tons, against 1132 tons in May.

Name Receivers for Lake Superior Corp.

J. Albert Homan, Trenton, N. J., and E. Clarence Miller, Philadelphia, have been named receivers for the Lake Superior Corp., Camden, N. J., a holding company for the various Canadian enterprises, including the Algoma Steel Corp., Sault Ste. Marie, Ont. Creditors have been ordered to show cause at Trenton, Aug. 16, why the receivership should not be made permanent.

A few weeks ago action in Canada against the Algoma corporation was instituted.

Skip Foreign Bars in Test

On several construction jobs in the East a portion of the reinforcing concrete bars was furnished by American mills and the remainder from importations, but the test samples submitted to inspectors were entirely domestic material. This, states the Concrete Reinforcing Steel institute, Chicago, "borders very closely on misrepresentation." Several selected cases may be put up to the federal trade commission. The Institute recently won a decision by the tariff commission that foreign bars must be individually stamped with the country of origin.

Industrial Men in the Day's News

Robert Gregg, Vice President, Tennessee Coal, Iron & Railroad Co.

HE breaks precedent by coming from the outside to so high a position with a Steel corporation subsidiary.

THIS is only the second company with which he has been connected, his service with the Atlantic Steel Co. being continuous.

GRADUATE of Georgia Tech and Cornell, he became president of the Atlantic company when he was only 37.

ROBERT GREGG, made vice president of the Tennessee Coal, Iron & Railroad Co., Birmingham, Ala., to succeed Willard Wilson, Aug. 1, has the unique distinction of being one of the few highly-placed executives of the United States Steel Corp. or its subsidiaries not to come up through the ranks.

Mr. Gregg has been president of the Atlantic Steel Co., Atlanta, Ga., and has been associated with that company during his entire business career.

Born at Atlanta, April 14, 1885, he was educated in the public schools of Atlanta, was graduated from Georgia School of Technology in 1905 and received his degree of M. E. from Cornell university in 1906. In August, 1906, he entered the employ of the Atlantic Steel Co. as clerk in the general superintendent's office. A year later he was transferred to the open-hearth department and shortly afterward made cost accountant. In 1909 he became secretary of the company, later treasurer, and in April, 1922, was made president, when he was only 37 years old.

Mr. Gregg, who is a director of the American Iron and Steel institute, is a member of many clubs in Atlanta.

Unusual importance is attached to the appointment of Mr. Gregg because of the approach of H. C. Ryding, now president of the Tennessee company, to the retirement age and the report that the Tennessee company will be made the sales agency in the South for all Steel corporation subsidiaries.

E. M. UNDERWOOD, for the past 14 years connected with the Fairbanks, Morse & Co., as sales engineer, has joined the combustion engineering department of the Patterson Foundry & Machine Co. and will make his headquarters at East Liverpool, O.

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John R. Heckman has been appointed district sales manager at Chicago for the Midvale Co., Philadelphia. His headquarters are in the McCormick building, Chicago. Mr. Heckman succeeds Fred W. Sager, resigned.

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E. T. Weir, chairman of the board, National Steel Corp., Pittsburgh, recently discussed business and unemployment problems with President Hoover during luncheon at the White House, Washington.

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M. H. Grabein, formerly with the Texas Steel Co., Fort Worth, Tex., has been appointed assistant plant superintendent, Tulsa Steel Co. Inc., Sand Springs, Okla., according to announcement by L. W. Conroy, vice president and general manager.

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R. W. Shannon, for many years district sales manager at Philadelphia for the American Sheet & Tin Plate Co., has resigned.

Harry E. Duff, for 20 years sales manager at Cleveland for the company, has been appointed successor to Mr. Shannon at Philadelphia.

B. J. Richards, assistant sales manager at Cleveland, succeeds Mr. Duff, Aug. 1.

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T. N. Holden, formerly a metallurgist in charge of chemical and physical chemistry and also heat treating for E. W. Bliss Co., Brooklyn, has become affiliated in a similar capacity with the Martin Forge Co., Brooklyn. Mr. Holden had been with the Bliss company 16 years.

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John C. Williams, president, Weirton Steel Co., Weirton, W. Va., and vice president, National Steel Corp., Pittsburgh, will sail from New York, Aug. 6, for a visit to the British Isles.

Germans Export More Wire

German exports of wire, wire rope, fencing and screening, in 1931 at 387,220 metric tons showed a slight increase over the 384,551 tons of 1930, according to a report by the American consul at Cologne to the department of commerce. This was in spite of slight decreases to Great Britain, normally the principal buyer, and to Japan.

Obituaries

JAMES R. FITZSIMONS, 58, former president of the FitzSimons Steel Co., Youngstown, O., died July 26 on his estate near East Springfield, Pa., after being accidentally shot. He retired in 1929 from active connection with the FitzSimons company at Youngstown, which had been founded by his father, the late Thomas G. FitzSimons. His brother, Robert is vice president of the FitzSimons company.

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Edwin B. Hendrie, founder of the Hendrie & Bolthoff Mfg. & Supply Co., Denver, died July 15. He was 85. On retiring two years ago he distributed stock of the company among the older employes.

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Charles W. Hunt, 74, secretary emeritus of the American Society of Civil Engineers, New York, died at Engineers club, New York, July 23. He became assistant secretary of the society in 1892, was made secretary in 1895, and retired in 1920.

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Frederick F. Graham, 62, for many years secretary of the Lackawanna Steel Co. prior to its merger with the Bethlehem Steel Corp., died July 25 at Buffalo. He retired in 1922 after more than 35 years service with the Lackawanna and the Scranton Iron & Coal Cos.

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Patrick J. Delaney, 68, formerly assistant master mechanic of the Allegheny, Pa., plant of the Pressed Steel Car Co., Pittsburgh, died at Pittsburgh, July 23. He was born in Altoona, Pa., and was an employe of the Pressed Steel Car Co. from 1903 to 1924, serving as assistant master mechanic from 1918 to 1924.

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James Hughes, pioneer Wisconsin foundry owner, died July 22 at the age of 75 years. He established the Eagle Iron & Brass Foundry at Fort Howard, now Green Bay, Wis., in 1879. Later he became general superintendent of the Giddings & Lewis Mfg. Co., Fond du Lac, Wis., retiring from active business in 1921.

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William P. Kauper, 44, district sales manager of the Northwest Engineering Co., Green Bay, Wis., in Wisconsin and Upper Michigan, died July 20. Before becoming associated with the Northwest company he was construction superintendent of the Greiling Bros Co., Green Bay, marine contractor. During the World war Mr. Kauper served as a captain of infantry, stationed at Newport News, Va.

Steel Corp. Road to C. & O.

Bessemer & Lake Erie railroad, subsidiary of the United States Steel Corp., connecting the Pittsburgh district with Conneaut, O., is allocated to the Chesapeake & Ohio-Nickel Plate system in the 4-road consolidation in the East by the interstate commerce commission.

Here and There In Industry

PFAUDLER CO., Rochester, N. Y., builder of glass-lined steel equipment, has begun construction of a new furnace unit, to cost $125,000. It will be able to turn out equipment units with a capacity of 10,000 gallons each.

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W. S. Elliott Co., Jeanette, Pa., has begun removing machinery and equipment of the Kerr Turbine Co., plant in Wellsville, Pa., to the former company's headquarters. The Elliott company has owned the Kerr turbine works since 1923.

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Hobart Mfg. Co., Troy, O., has bought the physical assets of the Star Foundry Co., Troy. The latter will continue its corporate identity until it can close up its business.

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Chandler Products Co., Cleveland, has been licensed by the Dardelet Threadlock Corp., New York, to manufacture and sell bolts, nuts and screws with the latter's self-locking threads.

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Vanadium Alloys Steel Co., Latrobe, Pa., has devoted about 75 acres of a 200-acre tract adjacent to the steel mill for truck gardening, which is being made use of by about 100 employes.

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Dallas Boiler & Tank Co., Dallas, Tex., has moved to a new plant at 317 Bourbon street, from 3214 Hickory street, where it has been located for several years.

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Revere Copper & Brass Inc., 230 Park avenue, New York, has opened a sales office at 1615 Russ building, San Francisco, in charge of R. H. Binns Jr., Pacific Coast manager. He formerly was assistant sales manager of the Rome division and previously had been engaged in a metal distribution business.

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Lincoln Electric Co., Cleveland, will close its plant from Aug. 8 to Aug. 20, inclusive, for its annual vacation. A skeleton organization to make shipments for stock will be maintained.

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Youngstown Sheet & Tube Co. and Youngstown Steel Products Co., Youngstown, O., have moved their district office at Tulsa, Okla., from the Exchange Bank building to 1304 Philtower building. J. A. Mussler is in charge.

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Cleveland Chain & Mfg. Co., Cleveland, has moved the stock and equipment of the Krein Chain Co., Wapakoneta, O., to its plant at Cleveland, thus concentrating its manufacturing operations. Buildings and site are to be sold.

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Mid-Continent Pump Supply Co., Huntington Park, Calif., has established a branch office and shop at 915 East Second street, Tulsa, Okla., including a machine shop for repair of pumps. Roy Dunbar is in charge. The company manufactures oilfield and industrial pumps.

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Universal Foundry Co., Oshkosh, Wis., has added equipment for production of brass and bronze commercial castings. Output formerly was confined to gray iron, alloys and aluminum castings. The new line will include castings up to 250 pounds, in gray iron, brass, bronze and aluminum.

Steel Index Is Ready

The index to Volume 90 of STEEL, *for the first six months of* 1932, *now is ready for distribution. Copies will be sent to all subscribers requesting them.*

Steel Labor Index Falls

Washington—June employment index number for the iron and steel industry was 54.9, compared with 57.6 for May and 70.7 for June, 1931, taking 1926 at 100, according to bureau of labor statistics. Employment payroll index for the same industry for June was 23.3, compared with 28.3 for May and 54.1 for last June.

In the cast iron pipe industry in June the employment index was 31.3 against 33.7 for May and 59.2 for last June, while payroll index for June in the same industry was 17.5, compared with 19.9 for May and 48.6 for June, 1931.

Is Awarded Post Contract

Washington—Missouri Rolling Mill Corp., St. Louis, has been awarded 40,000 steel posts by the department of commerce at $6726, delivered.

MIRRORS OF MOTORDOM

DETROIT

WE'RE going to risk everything we've got to create useful work for just as many people as possible—put up all to help start the wheels turning . . Faith is catching . . We expect to be making 5000 to 6000 cars a day before long."

With these characteristic, breezy phrases (copyrighted by NANA Inc.) did Henry Ford on Feb. 27 confirm reports that he was preparing to bring out a new four and an eight. One month later, on March 31, he introduced the new models.

For understandable reasons production was desultory in April, but in May it reached 70,000 units for the domestic market. In June the daily rate reached 4200 units and the total was about 90,000. In July the crest was passed, and a preliminary estimate for the month is about 75,000.

Ford Cycle Is Shortening

For August the outlook is obscured by the possibility of a late summer vacation. Originally, the schedule for August was for less than 60,000 units. Current production is slightly over 3000, chiefly eights, as a number of fours have been warehoused.

So does fact confound prophecy, and thus does Mr. Ford "risk everything" and "put up all." Curiously enough, he is curtailing just at the time the country as a whole is beginning to believe it sees daylight.

This is no indictment of Mr. Ford. His February statement undoubtedly was calculated to attract wide publicity—which it did—and to build up confidence—which it did not. Despite the slide in production in July, Mr. Ford supplied about one half of the industry's total.

But the situation does go to show that Mr. Ford has been combating economic forces beyond even his control and that the Ford cycle is steadily being shortened, his success in creating an attractive low price market inspiring the competition which is now hemming him in. Compare the vogue of the various Fords.

Model T, introduced in 1908 and little changed except for some restyling in its latter days, enjoyed a run that lasted until May, 1927. In this reach of almost 20 years 16,000,000 Model T's were built.

Model A was brought out in December, 1927, and continued in production until about midsummer of 1931. In this period of 3½ years about 4,500,000 were produced.

Models B and 18—the current line—were formally shown March 31, 1932, and within 4 months, or by the end of July, after 250,000 were made, their production began to taper. The depression, of course, tempers any comparison, but it is evident that each successive model loses some of the free run of its predecessor.

Model T, for all practical purposes, had no competition through most of its career. Chevrolet began cutting into this field in the latter days of Model T, and made considerably hay while Ford was out of production during the summer and fall of 1927.

Essex is now definitely in this field. Willys has on the drawing boards a car several hundred pounds lighter than the new Essex, which in turn undercuts both Fords. Chrysler also is grooming an entry. General Motors in 1933 probably will have an eight competitive with the Ford eight.

Competition Is Tightening

Plymouth and DeSoto have been educating drivers of the Ford class and enrolling a good many graduates. Certainly the congestion in the market originally created by Ford and in the price class just above it is increasing and it may be the natural course of events that when business recovers the competition of Ford will be stiffer than ever.

Obviously any statement concerning Ford plans would be unofficial, but it is generally believed in Detroit that Mr. Ford will make model changes at the beginning of next year, and thereafter will conform to the general custom of the industry. A principal competitor is expecting this contingency.

One report is that a 5 or 6-inch longer wheelbase is in prospect for next year, and experiments with a straight eight motor are under way.

The curtailment by Ford, with the evident lessening of retail sales, is reviving the report that Mr. Ford will enter the mechanical refrigerator business. Some 6000 dealers with showrooms and a sales staff available would make an attractive outlet.

It is not known that Mr. Ford is entertaining the idea but he recently was offered a complete box and unit at slightly less than $60 on the basis of a large production contract.

Production Falling Fast

While sharing the countrywide belief that the business situation as a whole is turning for the better, the automobile industry has no illusions concerning August. As rapidly as the industry built up production from February to June it is now falling off.

In round numbers, February output was 117,000 units, March 118,000, April 148,000, May 185,000 and June 190,000. For July the estimate is about 160,000. August certainly will be far short of this total.

Before there was any rumor of a vacation, the Ford schedule for August was below 60,000, or about 15,000 below the estimate for July. Chevrolet's schedule for August is about 25,000, compared with about 32,000 for July and close to 35,000 for June. Hudson-Essex will make 5000 of the new Essex terraplanes this month.

Buick and Chrysler have distributed a little die work for their 1933 models.

EDITORIAL

Has Integration Been Carried Too Far?

REPORTS of the earnings of large industrial corporations during the present depression emphasize the tremendous burden imposed by investments in land, raw material reserves, etc., which are held largely for future use. For instance, the quarterly statement of the United States Steel Corp., released last Tuesday, showed a charge of $5,887,160 as the "proportion of overhead expenses (of which taxes alone are $4,819,317) of the Lake Superior iron ore properties and Great Lakes transportation service which normally are included in the value of the season's production of ore carried in inventories but which, because of the extreme curtailment in tonnage of ore to be mined and shipped in 1932, is not so applied."

Similar burdens are carried by all industrial companies which have undertaken to stake out reserves of raw materials in order to guarantee uninterrupted sources of supply for many years into the future. Among steel producers the expense of carrying idle iron ore, limestone and bituminous coal properties is particularly oppressive at this time. Manufacturers of rubber tires who a few years ago undertook to develop their own rubber plantations doubtless have felt the cost of these as yet unproductive ventures. Newspaper publishers who purchased their own paper mills and accompanying timber lands likewise carry an extraordinarily heavy load of expense during hard times.

To Buy Materials or Produce Them in Own Plant Is Difficult Question

However, the practice is not confined to control of raw materials. The Ford Motor Co. built blast furnaces, steelworks and rolling mills and bought a railroad, a fleet of vessels, mines, etc. The railroad has been disposed of, and it is extremely doubtful whether all of the other Ford activities, beyond the immediate business of making automobiles, tractors and airplanes, have been justified by actual experience. From time to time other large users of steel have been tempted to build their own furnaces and mills. A few have done so, but in the majority of cases the final decision has been against such expansion.

A somewhat similar problem arises in connection with foundries and forge shops. From time to time many manufacturers have established foundry and forge departments in order to control the sources of castings and forgings. Their experience has not been uniform. Some companies have profited by concentrating these operations under their own roofs; others would have been far better off had they continued to buy these products from contract shops.

Viewpoints as to the desirability of integration of industrial operations vary with changes in business conditions. Right now many executives are studying the relative merits of integration and specialization with a view of determining which is the better policy for long-time stability and earnings. Will a company gain more in the long run by integrating the more important functions into a single organization or by specializing on the operations in which it has demonstrated marked ability?

Integration Good for Some Companies but Specialization Is Best for Majority

Unfortunately it is impossible to formulate a general rule applicable to all companies. It would be unwise to say that all steelmakers should buy iron ore and coal instead of operating their own mines, or that all manufacturers of steel products should purchase steel, castings and forgings instead of producing their own. American industry affords numerous illustrations to show that a few corporations have achieved success through integration and that many others have prospered through specialization.

Nevertheless, one cannot escape the belief that in many instances integration has been carried too far. Even in years of good business scores of industrial concerns were maintaining departments in which the cost per unit of production was much higher than the material or parts could have been purchased from jobbing shops. Frequently specialists in contract work can provide quality of product and service that cannot be approached by the corresponding departments in integrated establishments. Perhaps a few companies have been nursing sick departments along in the belief that they help to absorb part of the overhead, whereas in reality their contribution to the business over a long period has been a deficit rather than a profit.

Fortunately the depression is forcing a critical study of these questions. If the net result is a general weeding out of cancerous growths—a curbing of over-enthusiastic integration—then all industry will be benefited.

THE BUSINESS TREND

Signs of Early Improvement Are More Tangible

DEVELOPMENTS of the past week have strengthened the undercurrent of optimism that is sweeping through industry. The inclusion of wheat and corn in the list of commodities in which prices have risen was a strong stimulant for sentiment. Support also came from the evidence of capital awaiting investment furnished by the oversubscription by 12 times of U. S. treasury issues. Sporadic instances of improvement in many lines of business likewise contributed to the better tone.

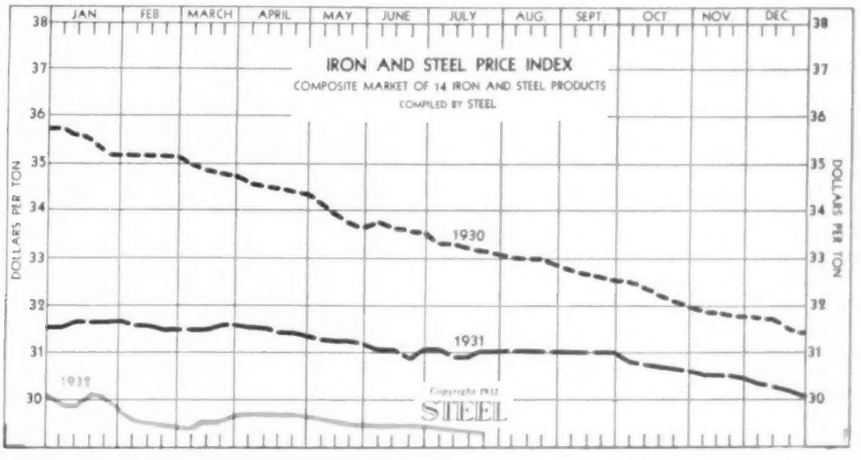
As yet the effect of these favorable factors has not been communicated to the iron, steel and manufacturing industries except in a small way. Steelworks operations are edging up very slowly, which, considering the season of the year, may be a much more gratifying movement in the long range view than if an unseasonable spurt were to occur at this time. The majority of industrial leaders will be satisfied if the present rate of activity builds up slowly until late in August or September, at which time seasonal and pentup demand should give it increased momentum.

In spite of the sorry aspect of many of the earning reports for second quarter, they have had little effect on sentiment. A gratifying feature in the statements of several companies—notably United States Steel Corp. and Republic Steel Corp.—is the marked reduction in funded indebtedness that is being effected. Another outstanding feature of current reports is the heavy burden imposed by depletion, depreciation, obsolescence and overhead represented in land, mines and transportation equipment. The depression has served to bring these items into sharp focus and to direct attention to the real degree in which some of the raw material reserves for future requirements are justified.

Production of Electricity Turns Upward Following Prolonged Decline

After declining gradually for several months the weekly output of electric power has turned upward. Freight car loadings were up rather sharply in the week ending July 16. Renewed complaint is heard of the increasing deficiency of car loadings as a true barometer of freight traffic. The need of statistics on movement of freight by truck and water and of the transmission of electric power insofar as it has replaced shipments of coal, is more pronounced now than heretofore.

At the time of writing, the prospect of significant agreement at the Ottawa conference is not as bright as when the representatives of the empire first met. The early reports of the probable effect of the deliberations on American exports appear to have been exaggerated.

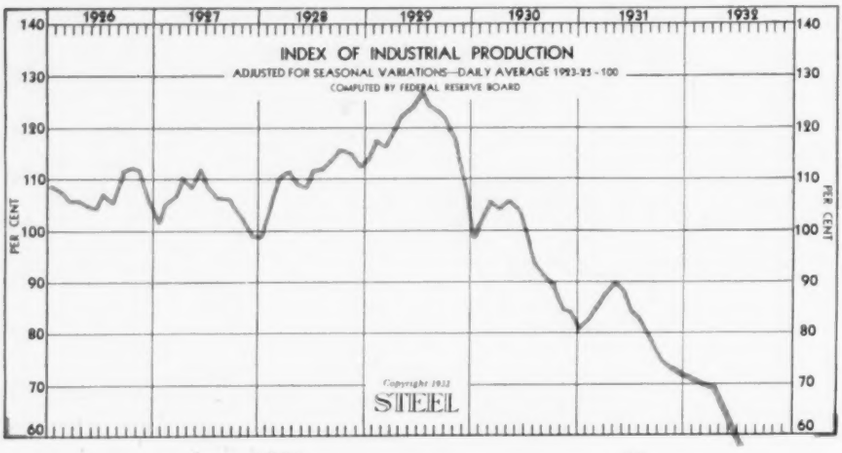


1932

July 23	$29.46
July 16	29.46
July 9	29.48
July 2	29.52
June 25	29.52
June 18	29.52

1931

July 22	$30.98
July 15	30.98
July 8	31.11
July 1	31.11
June 24	30.99
June 17	31.03



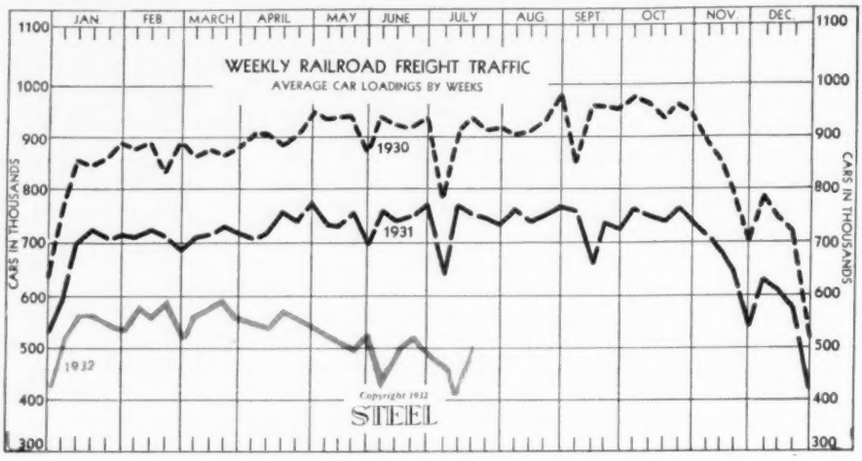
June, 1932	59
May, 1932	60
June, 1931	84

Industrial Production Shows Slight Loss in June

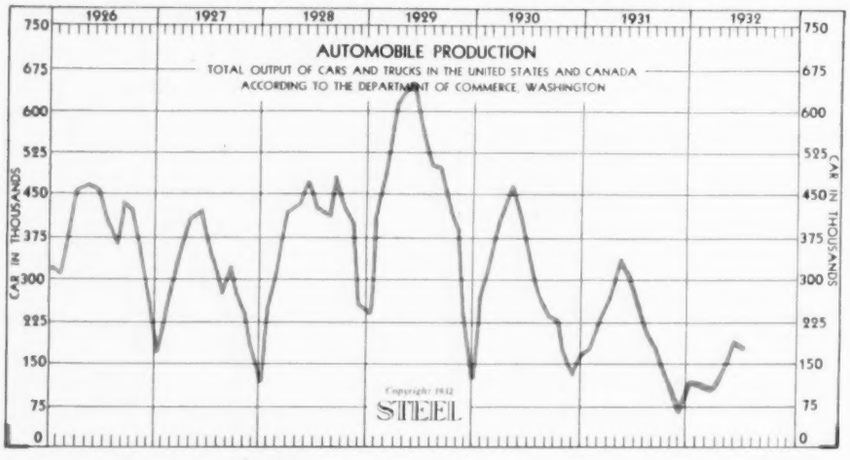
The index of industrial production compiled by the Federal Reserve board continued to show a slight decline in June. It was off one point to 59 from the revised index for May. The index for June, 1931 stood at 84 or five points under the May index of that year. Among the component parts of the index, manufactures dropped one point to 58 with adjustment for seasonal variations. Iron and steel dropped four points while textiles gained four points.

Freight Traffic Recovers Following Holiday Week

Loadings of revenue freight for the week ending July 16 totaled 504,094 cars, according to the report from the American Railway association. This represents a gain 87,144 cars above the previous week when loadings slumped to 416,950 cars due to the observance of Fourth of July holiday. Loading of miscellaneous freight for the week totaled 183,684 cars, an increase of 32,968 cars over the previous week but 100,186 cars below the corresponding week in 1931.



	1932	1931
July 16	504,094	757,989
July 9	416,950	762,444
July 2	489,273	667,430



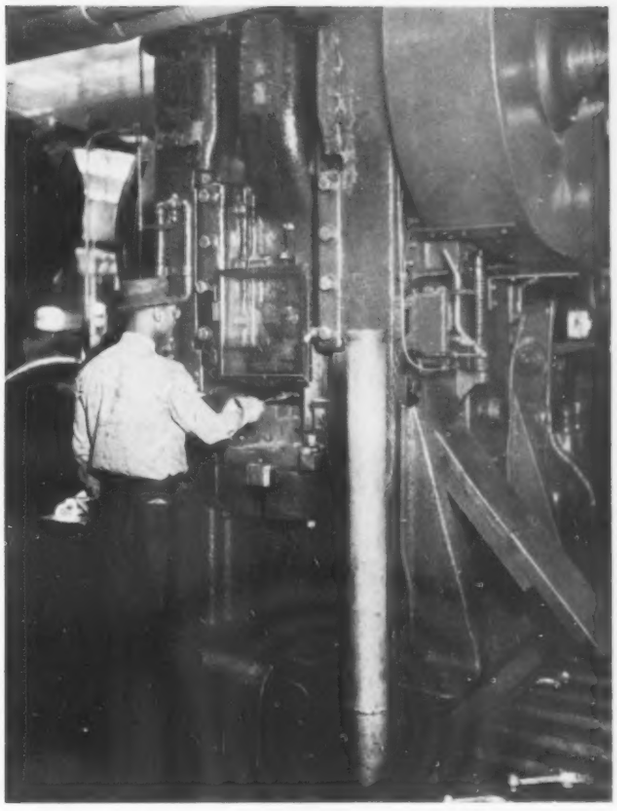
June, 1932	190,204
May, 1932	192,505
June, 1931	257,475

Automobile Output Down Slightly in June

Production of passenger and commercial motor vehicles in the United States and Canada in June totaled 190,204 units, a slight drop from the level of 192,505 established in May. According to the monthly report of the United States department of commerce, June output embraced 166,411 passenger cars, as against 164,952 the preceding month and 215,619 in June last year. Production for the first half of this year was 44 per cent under that of the same period in 1931.

Ford Axle Shafts Heated And Forged Automatically

BY E. F. ROSS
Associate Editor, STEEL



To obtain uniform weight, connecting rods are reheated after forging and restruck in a motor-driven press. As compared with a hammer restriking, this press has increased production 147 per cent

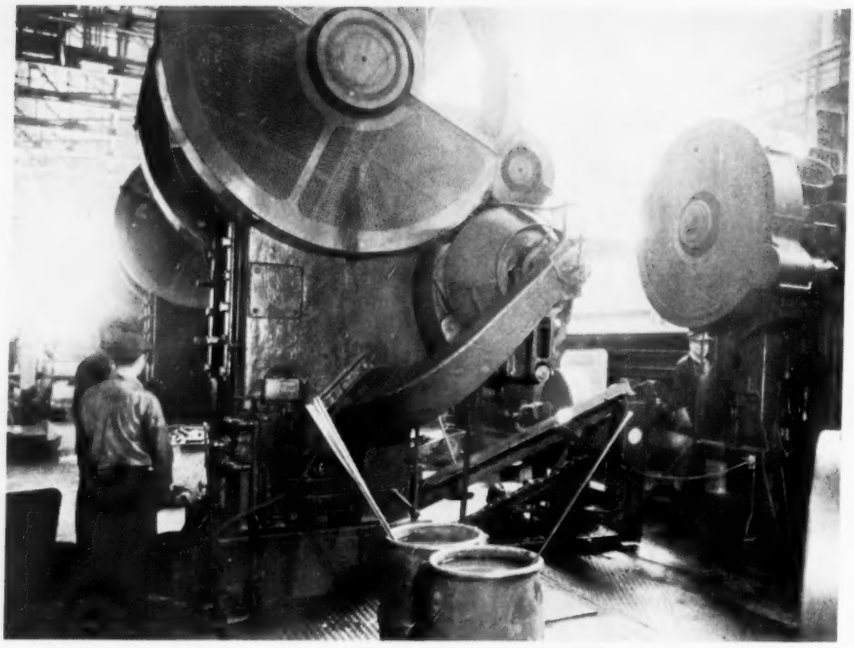
BECAUSE continuous production leads to lower costs, the Ford Motor Co. loses no opportunity to place any operation on that basis. Customary practice in industry sets no precedent, and for that reason, many new types of equipment and handling methods have been pioneered in Ford plants, later to become approved practice elsewhere.

Any number of new developments along this line were worked out in connection with the company's introduction of its new V-8 and Model B automobiles. These, treated individually, would be hailed as distinct industrial contributions, but being incidental to car manufacture they become overshadowed in importance by the car itself. Moreover, they are all the more remarkable because their engineering development was accomplished while details of the car were being determined.

Forging operations, it would seem, do not lend themselves to the application of continuous principles except in furnace heating and conveyor handling of stock to and from hammers and presses. Ford engineers, however, have investigated this field and have devised an installation in which the rear axle shaft is not only heated but upset on one end to form the gear blank, all by completely automatic means. One operator charges stock into the furnace and it is not touched by human hands until it is discharged from the forging machine by conveyor.

This installation, shown in an accompanying illustration, consists of an elevated-type of continuous electric heating furnace, the motor-driven forging machine and two conveyors—one connecting the furnace with the machine and the other unloading the work from the ma-

FIFTH of a series of articles describing metal-working processes used by the Ford Motor Co. in building its new V-8 and Model B automobiles. This installment continues the discussion oi forging methods commenced in a preceding article and includes the description of a most interesting installation for heating and forging gear blanks on rear axle shafts on an automatic and continuous basis. The achievement is outstanding in forging practice. Another installment dealing with the typing of forging and other dies will appear in an early issue. Previous articles were devoted to welding, forging, heat treating and pickling methods; the first appearing in the June 6 issue of STEEL, the second in the June 20 issue, the third in the July 4 and the fourth in the July 18 issue.



Rear axle housing flanges are forged in three 900-ton motor-driven presses. With one stroke the heated billets are squeezed to shape, then automatically ejected and carried by conveyor to the trimming presses at the rear

chine. The furnace, supported about 6 feet above the floor on a structural framework, has a rating of 900 kilowatts using 220-volt, 3-phase, 60 cycle alternating current. It obtains its heat from 90 Globar-type resistors connected in four circuits, three of 270 kilowatts and one of 90 kilowatts. The resistors have water-cooled fittings on the ends where they project through the shell of the heating chamber.

The conveyor mechanism of the furnace consists of two parallel chains, moving in horizontal planes at the same speed, one about 18 inches above the other. These chains, concealed in a housing running the length of the furnace and directly below the heating chamber, are carried on sprockets, the pair at the loading end being outside the furnace and accessible from a loading platform. The sole operator for the furnace and forging machine stands on this platform and loads the conveyor.

Upper Ends Are Heated

The stock for the rear axle shaft is 1 5/32-inch rounds 38⅜ inches long and the pieces are inserted first through openings in the top chain and then through openings in the lower chain. The chains do not grip the pieces, but merely serve to hold them in a vertical position with their lower ends sliding in a steel trough and their top ends projecting into the heating chamber.

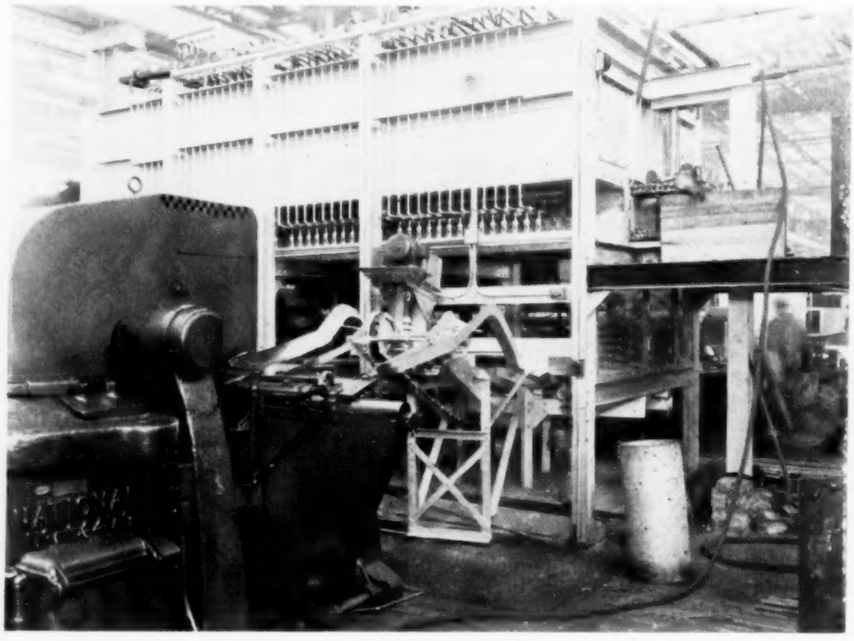
These pieces remain in the furnace for approximately 10 minutes during which time they travel the length of the heating chamber and back and have their upper ends for a length of 8 inches heated to a temperature of 2200 degrees Fahr. The furnace has a capacity for 1500 pieces per hour, thus 250 pieces are passing through at one time. Just before the pieces are discharged, the heated ends are cleaned free of scale by a device consisting of two rails and a rotating disk on which are inserted four hardened steel burrs. Discharge from the furnace is automatic; the pieces move forward almost to the loading station and drop one by one through an opening in the bottom of the conveyor into a socket provided with a shock absorber.

As the pieces are caught in the socket, they are lowered to a horizontal position with the heated ends toward the rear of the furnace and are deposited on the double-chain conveyor connecting the furnace with the forging machine. Thus they are moved to the automatic loading device of the machine and gripped in mechanical tongs. This machine has four dies and each piece in having its end upset and the 3¾-inch diameter gear blank formed must pass successively through the four impressions. Four pieces are in the machine at the same time.

Dies Operate in Unison

Upon each stroke of the machine, all four dies open and the mechanical tongs advance one die, thus as a new piece enters the first impression, a finished piece is discharged from the fourth impression. Completed forgings are released from their holding tongs and slide down an incline beneath the machine on a chain conveyor installed between the heating furnace and forging machine. This conveyor carries the rear axle shafts to floor level where they are removed by hand and suspended on an overhead chain conveyor to be taken to the heat treating and pickling units.

The forging machine is driven by a 35-horsepower motor and operates at 25 strokes per minute. Thus it has a production of 1500 forgings per hour. The heating furnace and forging machine are completely synchronized—each time a heated piece is discharged from the furnace, a piece enters the machine and a fin-



In this unique installation gear blanks on the rear axle shaft are upset and forged on an automatic basis. Only one operator is required and his task is to load the furnace conveyor. The shafts are carried to the forging machine by conveyor, gripped by mechanical tongs and forged in four operations

ished forging is discharged. Ford engineers state that the automatic tong feeding device is faster and more accurate than manual handling and the finished forgings are of higher quality and greater uniformity.

Front Axles Press Forged

As described in the July 18 issue of STEEL, front axles for the new cars are made by press forgings. These axles, of I-beam type and weighing 25 ½ pounds flash trimmed, are forged from 29-pound die rolled billets in an 1800-ton motor-driven press in two operations. The first operation is simply to bend the billet to fit the die impression as well as to remove scale; the second operation performed with a second stroke of the press is to form simultaneously the spindle bearings on the ends. With the press an axle is formed in 2.6 minutes, whereas by hammer methods 10 minutes were required forging one end at a time. For certain parts, therefore, press methods effect notable economies.

Another interesting pressure forging is the rear axle housing flange which is joined by electric flash welding to the arc-welded tubular rear axle housing described in a previous article. This forging, weighing about 8 pounds, is made from a billet shear cut from 2 ¾-inch diameter steel round stock. One of the billets and a finished forging are shown in an accompanying illustration.

The billets are heated to a temperature of 2200 degrees Fahr. in a circular revolving-hearth electric furnace, the billets being placed on the hearth by an automatic loading mechanism. An operator places the round billets in a chute and they roll down one by one into a tube which moves into the furnace, rotates and deposits a billet on the moving hearth.

The electric furnace shown on this page, is heated by a series of Globar-type nonmetallic resistors which almost totally surround the hearth and have their extremities water cooled where they project through the shell. The furnace, only recently installed, has a capacity for heating 400 billets an hour and having a controlled atmosphere considerably reduces scaling. It supplies billets to three presses and replaces three oil-fired furnaces formerly used.

Heated billets are removed by tongs from the furnace through a chain guard and are placed in the dies of one of three 900-ton electric motor-driven forging presses and in a single stroke are squeezed to shape. One of these presses can be seen in an accompanying illustration. Each press is being equipped with an automatic ejector to remove the flange forgings from the dies and to drop them on a vee-chain conveyor terminating at a trimming press a few feet to the rear of the forging press.

Heat Treated and Pickled

After the trimming operation, the forgings and flash are placed on a floor conveyor passing adjacent to the three trim presses and are carried to the end of the department for inspection. Here the forgings are transferred to another conveyor traveling to the heat treating and pickling units, while the flash is removed as scrap.

The rear axle housing flange at the right is press forged from the 8-pound cylindrical billet at the left in one operation

The dies used in the three axle flange forging presses as well as those in the 1800-ton axle press are made by typing, a process developed by the Ford company and to be described in a subsequent article. Dies produced by this method show considerably longer life than those made by the usual die sinking practice and are used for all pressure forging work. They are also used for making a number of the lighter hammer forgings; for trimming; and for molding plastics such as steering wheels.

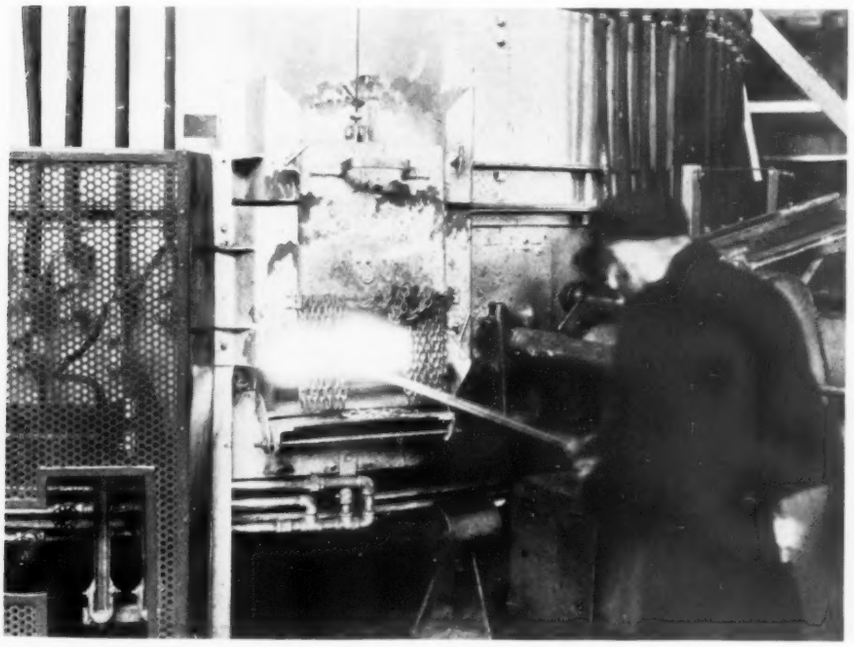
Connecting rods for the V-8 are steel forgings of I-beam section, are 7 inches long and weigh 464 grams finish machined. These rods are interchangeable in the engine, therefore, the tolerances of dimension and weight are extremely narrow. For this reason, most exacting limits are prescribed for the forging practice and each rod must satisfactorily pass a weight test before leaving the forging department. Rods which are over or under weight are rejected at this point.

Restruck in a Press

After forging, the connecting rods are reheated and restruck in a motor-driven press to guarantee close weight. The reheated forgings are removed from the furnace and placed on a pedestal at the left of the press shown on the first page of this article. The press operator picks them up with tongs, places them one at a time in the restrike dies and trips the ram. After the restrike, the rods are automatically ejected from the lower die by compressed air and slide through a chute from the side of the press to drop on a floor conveyor. Double protection to the eyes of the operator is provided by goggles and a wire-mesh glass guard mounted on the press in front of the ram.

Production of connecting rods has been increased 147 per cent and greater uniformity in dimensions

(Please turn to Page 28)



Eight-pound cylindrical billets from which the rear axle housing flanges are forged are heated in a rotary-hearth electric furnace. This furnace derives its heat from nonmetallic resistors, has a capacity of 400 billets an hour and replaces three oil-fired furnaces formerly used to supply the three presses

The exterior of this combination filling station and lunchroom is of porcelain enamel. Two workmen attached the panels to the steel supports in 16 hours

Porcelain Enamel and Steel Utilized in New Type of Building Construction

A NEW method of porcelain enamel on metal construction has been developed by S. M. Toussaint and J. F. Moore, Chicago, and has been put into practice in a combination gasoline filling station and lunchroom in Chicago. The project is sponsored by the American Rolling Mill Co., Middletown, O., the Chicago Vitreous Enamel Product Co., and the Celotex Co., also of Chicago.

The building's exterior is finished in black and orange porcelain enamel on 17¾-inch square metal ashlar sections, or flanged units into which the porcelain has been fused. The units are attached to the wood studding by means of horizontal steel bars placed 18 inches apart. They were fabricated, enameled and insulated with ¾-inch celotex in advance of erection and are sealed with elastic asbestos cement.

Walls 5¼ Inches Thick

Through the use of this construction and by insulating the metal sections, it was possible to construct the building with walls only 5¼ inches thick, including a 3¾-inch air space. A wainscoting of porcelain enamel has been used to finish the interior. Accompanying illustrations show the completed building and a wall section.

This new method of construction, which is applicable to any type of building, has made it possible to erect the gasoline station in less than three weeks' time. It required two men but 16 hours to attach the exterior finish of porcelain enamel. Other features of this type construction are that either a wood or steel framework may be used, a wind brace that needs no other support is provided by the steel horizontal bars which hold the sections in place. Individual porcelain sections may be inserted or removed with little effort or expense, and the building may be dismantled and moved to another location if necessary.

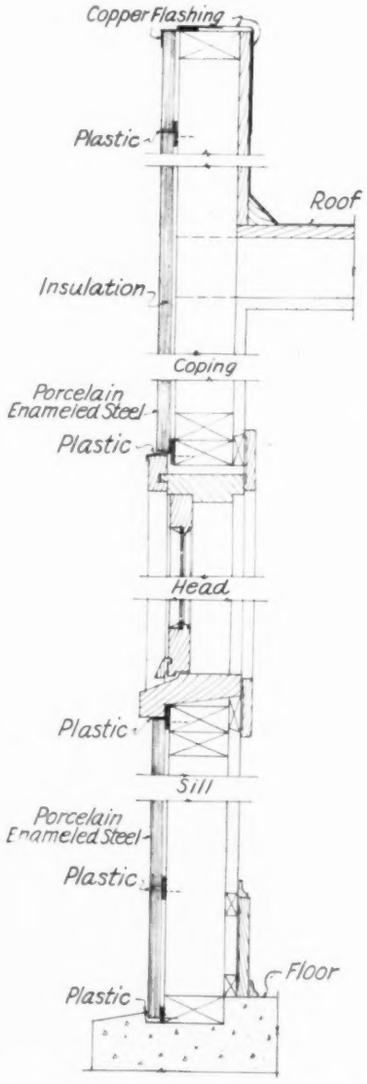
Although small as filling stations go, the design of this one has provided for the installation of a miniature roof garden, lunch room, kitchen, rest room, office, and oiling rack. The structure is topped with a porcelain enameled tower, also of orange and black ashlar sections. Because of the diffusing qualities of porcelain enamel and the general lighting arrangement, the tower is visible at night for several miles.

The advantages of porcelain enamel on metal buildings and this particular method of construction, as pointed out by the sponsors, are simplicity and quickness of erection; material cost reduction over usual type buildings; colors to be obtained through the use of porcelain enamel; reduction of maintenance to a minimum; ease of cleaning the surfaces with water; and the identification and advertising value made possible for commercial buildings through the use of this material.

Cathode-Ray Tube Used in Spectroscopic Analysis

A new method of X-ray spectroscopic analysis was described by Dr. G. R. Fonda of the research laboratories of the General Electric Co., Schenectady, N. Y., at a recent meeting of the American Institute of Chemical Engineers in that city. A small cathode-ray tube, rather than an X-ray tube, is used by Dr. Fonda in spectroscopic analyses of unknown substances. A special X-ray tube, in which the target is made of the material which is to be analyzed is ordinarily employed; but such a tube must be taken apart for the insertion of samples and many materials cannot be examined in this manner since their presence within the tube would be disastrous to the high degree of vacuum which must be maintained.

Since X-rays are produced when cathode rays strike an object in air, Dr. Fonda has been able to make spectroscopic analyses by placing a piece of the unknown substance immediately beyond the window of the cathode-ray tube and making readings of the intensities of the characteristic spectroscopic lines either visually or photographically. Employing this manner of analysis, he has developed a method for quantitatively analyzing samples containing columbium and tantalum, two elements which present decided difficulties for analysis by purely chemical means.



A general idea of the construction method and use of various materials is afforded by this wall section

Iron Alloys Research Makes Good Progress in Second Year

SUBSTANTIAL progress has been made during the past year by the Alloys of Iron Research, a project organized two years ago by the Engineering Foundation and financed by technical societies, research institutes and the iron and steel industry of the United States.

According to progress report No. 2 issued recently by the research office, 29 West Thirty-ninth street, New York, Frank T. Sisco, editor, reports that the critical survey of research on iron and its alloys, as reported in the technical literature of the world from 1890 to date, is more than 50 per cent complete, and the publication program is well advanced. The manuscript for the first monograph has been delivered to the publisher, another is completed and soon will be ready for pre-publication issue to consulting editors and participants; a third and fourth are partly written. Work has been started on a fifth and sixth, and plans have been made for four more.

To accomplish the most thorough survey in the shortest time the review to date by the editorial office has been confined to the most important metallurgical journals; more than half of these, in English, German, French, Swedish and Italian, have been abstracted and all information of value for monographs and manuals has been extracted and filed. From these journals 3540 technical and scientific papers have been reviewed and 9419 abstracts prepared.

Seek More Practical Data

A detailed classification of abstracts presented in the progress report affords a fairly representative cross-section of the information available in the literature on ferrous metallurgical research; it is believed probable, however, that the proportion of abstracts on manufacture, heat treatment and uses will increase materially as more trade journals are reviewed.

The table reveals the interesting fact that alloys of iron with all the selected elements have received some attention from researchers. Even the alloys of iron with rare metals including gold, platinum, iridium and others have been investigated. Noteworthy is the small amount of published information on the effect of cold working on alloy irons and steels.

Interest shown by metallurgists in nitrogen hardening is evident in the large amount of data published on nitrogen in iron and steel, as compared with oxygen, hydrogen and other gases. Interesting also is the greater appeal of oxide inclusions as a research problem, as compared with the other common inclusions, sulphides and silicates.

The literature survey is approaching the stage rapidly where the editorial office will have available a critical summary, classified according to the table in the report, of all important papers recording research on ferrous metals, published since 1890. When completed, this survey should be of great value to those researchers or technicians who wish to review rapidly past work in their chosen fields. Even at present the information available should make it possible to compile a comprehensive bibliography on any phase of ferrous metallurgy.

Independent Surveys

The co-operating groups are making independent surveys of the literature and assembling data for their assigned monographs. The New York office is assisting in these surveys by supplying abstracts from its files so that duplication will be avoided. The status of these independent surveys are noted in the following paragraphs.

One monograph will be published in 1932 and two in 1933. The work on the others is progressing rapidly so that the anticipated schedule of two books each succeeding year doubtless will be followed closely. The tentative schedule of mongraph publication is as follows:

No. 1—*Iron-Molybdenum*: The completed manuscript, written by J. L. Gregg, Battelle Memorial institute as a part of the institute's contribution to Alloys of Iron Research, was approved for publication in May. Publication should take place in the early autumn.

No. 2—*Iron-Silicon*: The manuscript, prepared by the editorial office, is completed and is ready for distribution to consulting editors and participants. If approved, it will go to press in late autumn for publication in the spring of 1933.

Nos. 3 *and* 4—*Iron-Tungsten and Iron-Copper*: The survey of literature for these two alloy systems, being made at Battelle Memorial institute, is nearing completion. Portions of the text of the iron-tungsten monograph have been written; work on the manuscript for iron-copper will start in a few weeks. The two manuscripts should be ready for review by the consulting editors early in 1933. Publication is scheduled for autumn of 1933 or spring of 1934.

No. 5—*Pure Iron*: The survey of literature of pure iron, in progress for the past two years at the bureau of standards, is nearly complete and work on the manuscript has been started. Completion of the manuscript is expected in 1933.

No. 6—*Iron-Nickel*: The manuscript will be prepared by the editorial office with co-operation of the research and development department of the International Nickel Co. The survey of the literature for this volume is partly completed; work on the manuscript will be started in a few weeks. Publication is scheduled for 1934.

Others in Formative Stage

Nos. 7, 8, 9 *and* 10: Monographs on the iron-chromium, iron-vanadium, iron-managanese and iron-carbon alloys have been planned. The preparation of the volume on iron-chromium, under the direction of Dr. F. M. Becket, president, and J. H. Critchett, vice president, Union Carbide & Carbon Research Laboratories; and the volume on iron-vanadium, under the direction of Jerome Strauss, chief research engineer, Vanadium Corp. of America, will be started as soon as the literature survey is complete.

A partial survey of the literature on the iron-manganese system has been made by the editorial office and by F. M. Walters Jr., Carnegie Institute of Technology. Work on the manuscript of the monograph will start this year. The literature of the iron-carbon alloys is being surveyed at Battelle Memorial institute to provide material for the preparation of this important monograph by the staff of the institute.

As the amount of material which must be reviewed for these monographs is large—very great for iron-carbon and iron-chromium—no estimate can be made at present of the date for their publication.

Plans are being made for a number of manuals and one, iron-silicon, has been authorized. No work has been done as yet on this phase of the publication program.

Two-Ply Stainless Steel Is Placed on Market

The Ingersoll Steel & Disc Co., Chicago, a division of the Borg-Warner Corp., announces perfection of a commercially successful two-ply stainless steel. The new metal, to be known as Ingoclad stainless steel, is produced by a patented process from the composite ingot.

It is stated that after many years of research the manufacturing process has been developed to the point where a perfect bond between the stainless

steel and carbon steel back is assured. The material is being produced at the Newcastle, Ind., plant and will be marketed at a price which will permit its use for many applications for which solid stainless steel could not be employed on account of prohibitive cost.

The new steel may be deep drawn, stamped, welded, formed and polished. According to R. C. Ingersoll, president of the company, it is now being produced in various gages and sizes and is being used by several large companies where extensive tests have substantiated the manufacturer's claims. Facilities will be available in the near future to supply all practical commercial sizes.

Develops Gasket Compound Proof Against Hot Oil

Gaskets of a new substance developed by the General Electric Co., Schenectady, N. Y., are said to be unaffected by oil even at high temperatures. The exposed edge of the gasket is not attacked, nor does the oil penetrate it. Oil-filled assemblies have been operated on test at from 210 to 230 degrees Fahr. for a year without affect on the gaskets and without leaks.

The material, an alkyd resin trade named Glyptal, may be used in contact with cemented joints and is not affected by dilute acids or dilute alkaline solutions. It is gray or brown, is odorless and sulphur free and is flexible and practically incompressible, there being no noticeable hardening or stiffening in outdoor exposure tests. At temperatures below zero Fahr. the compound is somewhat brittle, but this does not affect its efficiency as a gasket when assembled in a joint.

Among applications recommended are those where resistance to hot oil is of primary importance; where exposure to naphtha, gasoline, kerosene, benzine and similar solvents may occur; where moisture is to be excluded and oil resisted; where there may be prolonged exposure to ozone; and where electric corona may occur.

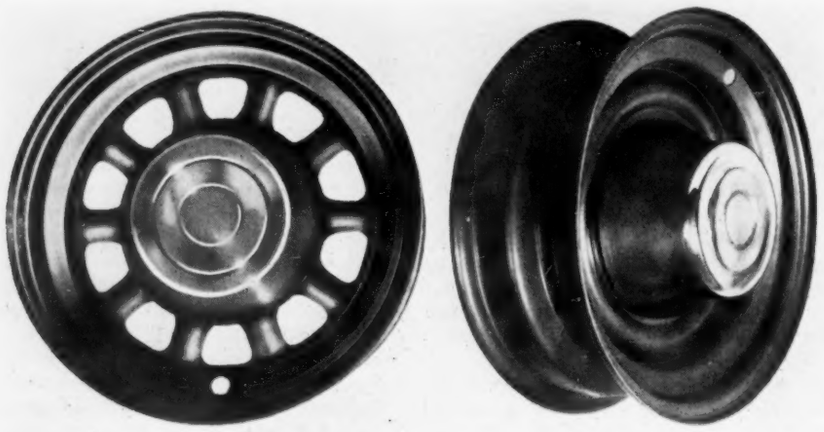
At present the material can be obtained in sheets up to 13 x 36 inches, in thickness from 1 mil to ⅛-inch. Round gaskets available have a maximum diameter of 12½ inches and a maximum thickness of ⅛-inch. Larger sizes will be available later.

Wheels for Doughnut Tires Are Steel Stampings Arc Welded Together

LOW-PRESSURE doughnut-type automobile tires require the use of a wheel having small diameter and a wide rim. Several new wheel designs have been developed and among them is an all-steel type introduced by the Falls Stamping Co., Cuyahoga Falls, O.

This wheel, made in both disk and spoke models as shown in the accompanying illustration, consists of two cup-shaped stampings, first spot welded together, then welded by electric arc in the drop center section. The hub cap, concealing the mounting studs, is stamped from cold-rolled steel and is chromium plated. It is held in position by a retaining ring spot welded to the hub section.

The wheels shown in the illustration are 15 inches in diameter and have a rim flange width of 5.50 inches. They are made from 12-gage strip steel and weigh 18 pounds for the disk type and 15 pounds for the spoke type. Although specifications allow a variation of plus or minus 0.064 inch in the flange width, the Falls company has been able to maintain limits of plus or minus 0.015 inch. The plant has a capacity to turn out 7000 wheels a day.



Announces New Hardening Process for Steel

Chapman Valve Mfg. Co., Indian Orchard, Mass., announces a new process for hardening low-carbon steel, by which the speed of hardening is increased greatly. The process, known as Chapmanizing, is claimed to be radically new.

The surface produced is glass hard, ranging in brinell from 700 to 1100, but it is also ductile; will not chip and will not flake. The process gives a case as deep as 0.025 inch which is practically impervious to wear. It is unaffected by grinding. It is said that any type of product made of low-carbon steel or malleable iron can be hardened.

Ford Axle Shafts Heated And Forged Automatically

(*Concluded from Page* 25)

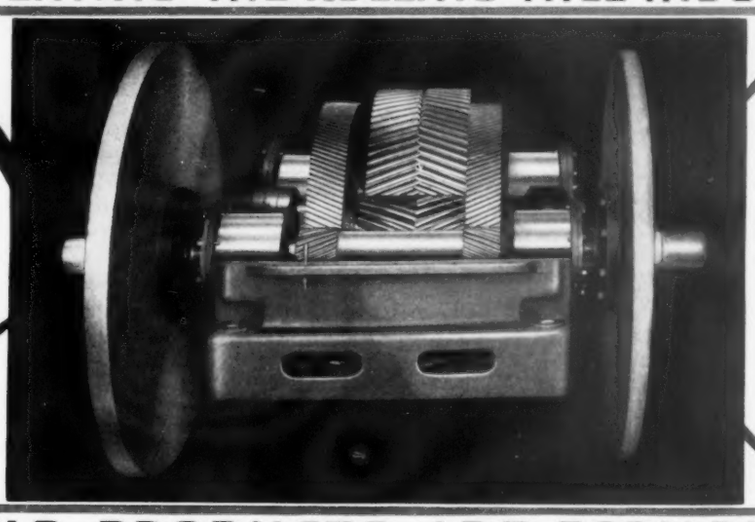
has been obtained through installation of this press. The machine has a capacity for restriking 1100 rods per hour and in 8 hours it will turn out 7900. Former practice was to use a hammer for the restrike, but under the most favorable conditions production did not exceed 3200 rods an hour.

Insofar as possible, the comfort and safety of Ford workers is provided for. There is ample evidence throughout the entire Rouge plant that personnel welfare has been given careful consideration. Space does not permit extensive treatment of this subject, but a few outstanding examples will serve to illustrate the point.

Where operations are hazardous, workmen are to be seen using goggles, gloves, pads and aprons. All presses and operating machinery are provided with guards and suitable safety devices. Man-cooling fans are installed where heat is unusually oppressive. Incidentally, electric heat for heating furnaces is utilized wherever possible because it promotes a clean shop and is quiet.

In the forge shop where the larger hammer forgings are made, a number of the heating furnaces have been installed on a balcony to remove the heat from the hammer operators. The heated stock is supplied to the hammers through covered steel chutes running from the balcony to the hammers. The larger steam hammers have substantial steel guards enclosing the heavy springs at the top so that in case of breakage, flying parts will be arrested without danger to life.

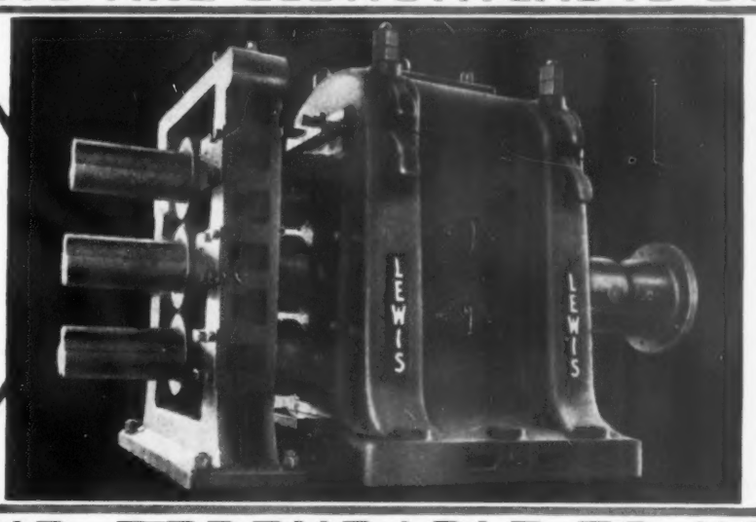
SERVING THE ROLLING MILL INDUSTRY SINCE 1856



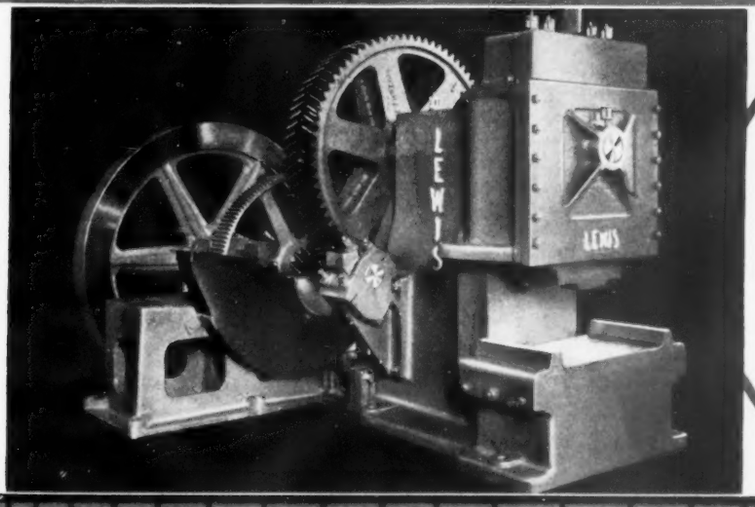
Balanced roller bearing equipped double reduction gear drive with very accurately generated teeth up to and including 6000 H. P.

LEWIS PRODUCTS ARE ECONOMICAL TO BUY

28" Three-High Enclosed Type Pinion Stand with universal couplings, combination spindle carrier and thrust bearing stand to take thrust from the mill.



EFFICIENT AND DEPENDABLE TO USE



150-lb. Rail Breaker for Scrap Yards and Rail Rerolling Mills. This machine makes a clean, straight break which is very desirable when entering a slitting mill.

LEWIS FOUNDRY & MACHINE CO.

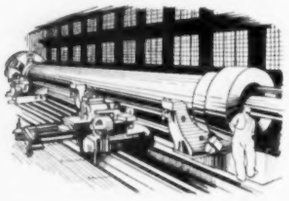
LEWIS

P. O. BOX 1591
PITTSBURGH, PA.

Making the Most of

METHODS AND MATERIALS

A MILLING machine operator being paid $5.60 per day of 10 hours was able to double his output by using a 4-inch tungsten carbide cutter. The job was facing a small casting which formerly paid him $1.04 a hundred, but which now pays only 51 cents because of the increased feed and speed made possible by tungsten carbide milling. This production of two days work in one meant a direct labor saving of $5.60 per day. The management estimated the burden at $1 per hour—a rather conservative figure, nevertheless, an extra day's work would be equal to $10. Thus the total daily saving was $14.60. The cutter at $125 would pay for itself in about 8 days. This is a large return for so small an investment. If only a 25 per cent increase had been achieved, the saving would be $3.60 a day and the cutter would pay for itself in 35 days. Based on a 300-day year, the investment would yield more than 850 per cent.



TUNGSTEN carbide tools are used regularly in a machine tool plant for heavy turning of cast iron at cutting speeds three times those ordinarily used. The columns of radial drills, sleeves, pulleys and gears are turned with these tools. Steel also has been turned successfully; grades that can be handled best by the tools are S.A.E. 1045 and softer. On these steels, the cutting speed can be increased from 50 to 100 per cent, but it is often advisable to reduce the feed, as compared with the feed used with high-speed steel tools.

S S S

A manufacturer of hatchets has eliminated the difficulty and expense of punching the eyes or sockets of these tools by forging two pieces and joining them by electric welding into a solid unit. The head first is forged flat and the two ends then are bent to form the eye. After the blade is forged it is affixed to the other section. A more satisfactory article is said to result from this process, failures having been insignificant in number. The eye is very accurate as to size, and a grade of steel particularly adapted for cutting can be used for the blade without involving the necessity of employing it also for the hammer end where a different grade is more applicable.

S S S

A new vapor degreaser has been developed to clean metal parts by condensation of vapor rising from boiling trichloromethane in the bottom of the tank. The vapor rises in the tank to the level of water-cooled condenser coils on the sides about 6 inches from the top where it condenses and returns as a liquid to the bottom of the tank. Metal parts to be cleaned of grease may be placed in a wire basket and suspended in the vapor and as the vapor rises it condenses on the colder surfaces of the parts and runs off carrying with it the grease and oil. The metal parts reach the temperature of the vapor in from ½ to 1½ minutes, when they are removed as cleaned. The machine is built in various sizes and to use steam, gas or electric heat.

S S S

With the increasing application of cemented carbide cutting tools, it has been brought out forcibly that these tools work to best advantage only when they are lapped. However, lapping of high-speed steel tools is just as important; it makes the tools work much better. When tools are lapped to a high finish, in addition to being ground, considerably longer life and better finish on the work are obtained.

S S S

In the early stages of stainless steel development, a manufacturer of lock washers in using this material for his product ran into considerable difficulty with surface checking which occurred with cold working. The trouble was located in the natural gas fired heating furnaces. The gas was carburizing the surface of the steel, thereby causing it to check with cold work. Both the carburizing and checking were eliminated by providing a hydrogen atmosphere in the furnace chamber.

S S S

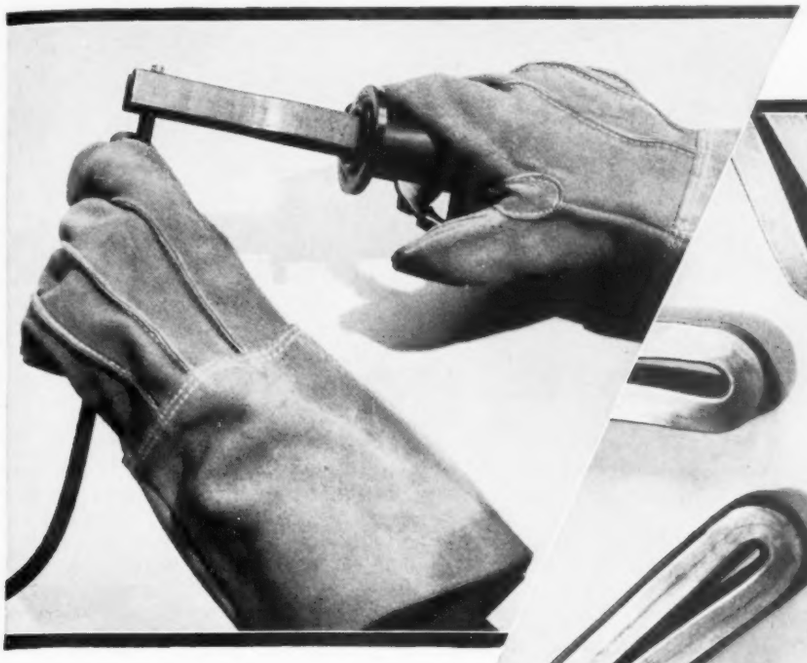
One of the regular operations of four electric industrial trucks used in an eastern shipbuilding plant is the distribution and collection of tools to and from the 15 sub-toolrooms located in different parts of the plant. Each morning at 9:30 an empty skid is placed at the main toolroom and containers with tools for the sub-toolrooms are placed on this skid and delivered. At the same time tools which need repairing or sharpening are collected and returned to the main toolroom. The complete trip requires only 30 minutes.

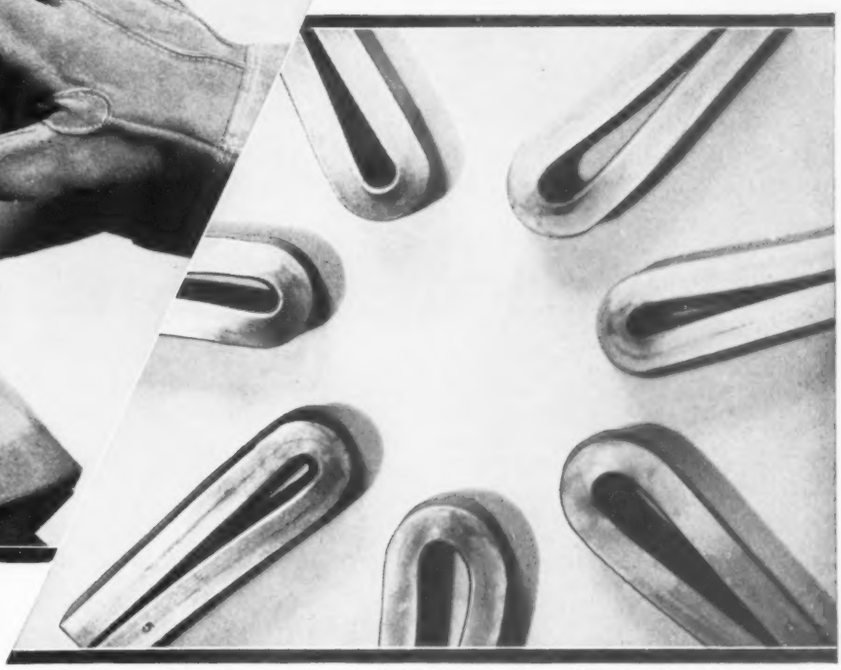
FINDING difficulty in welding together certain metals with which it has to deal in manufacturing telephone parts, a telephone company's research laboratory studies welds by X-ray. The X-ray machine is capable of making photographs of steel parts up to 3 inches in thickness. By experience the quality and strength of a weld is estimated from the shadowgraphs. This method not only offers a means for improving upon present methods, but is expected to prove invaluable in bringing out even more extensive applications of welding.

S S S

The recent growth in the manufacture of electric clocks has been helpful to a good many producers of materials and parts. On the other hand, losses have been sustained in other directions, for instance, this development has worked to the disadvantage of manufacturers of clock springs and spring steel.

IT'S **A TOOL** WHEN HE'S WELDING...





...WHEN HE'S FINISHED...IT'S **MATERIAL**

Free bends of bars containing Murex mild steel welds show a dense, fine grain and elongation of outer fibres of 45 to 60%

IN the hand of your welder, an electrode is a tool. But when his work is finished, it has become a material in your product.

Give your welders Murex Heavy Mineral Coated Electrodes and you give them precision electrodes. You give them a new control over results. You enable them . . . if it's speed you're after . . . to step up the amps without danger of undercutting, excessive spattering, or porosity . . . without stepping down the quality of deposited metal. In Murex deposited metal there is always quality to a generous margin. Here you don't want to work to close tolerances. Particularly if inspection and service requirements are severe, you want ductility and strength to spare. And that's what you get with Murex Electrodes.

If you are welding flat, vertical or overhead, on mild or high carbon steel, stainless, or manganese, Murex will bring you the kind of material you want in your product . . . plus the kind of a tool your welders will want to use.

Let us send the new, complete Murex booklet which tells, among other facts, why the fine results obtained with Murex Heavy Mineral Coated Electrode actually cost less. Write for a copy.

A MUREX ELECTRODE IS BOTH A PRECISION TOOL AND A FINE MATERIAL

Murex Electrodes are made in the United States by the American Murex Corp. and are sold by the Metal & Thermit Corp., pioneers of welding and manufacturers of Thermit. Literature on Thermit welding for many kinds of heavy repair work promptly sent on request. Write.

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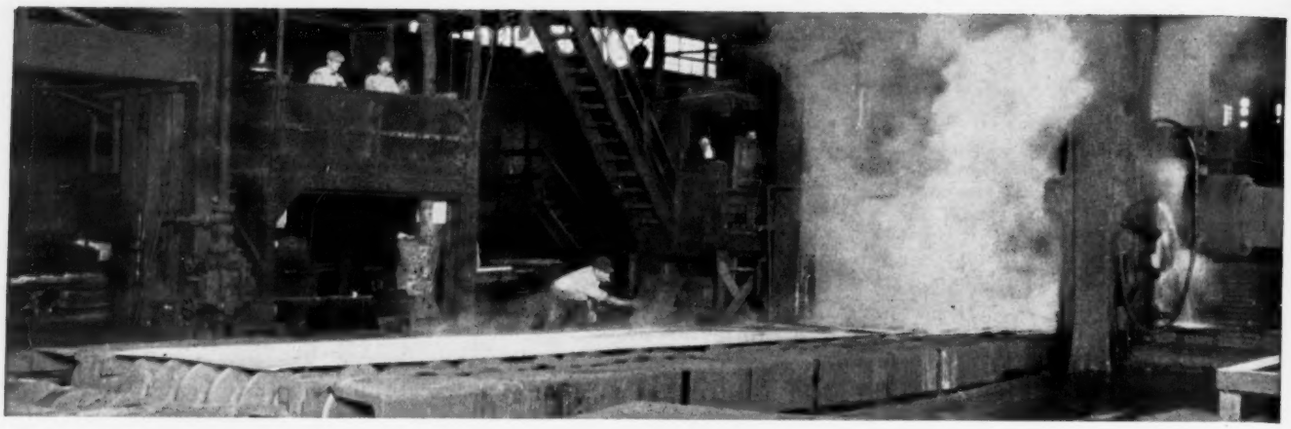
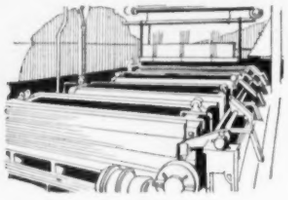
MUREX

HEAVY MINERAL COATED ELECTRODES



PROGRESS IN STEELMAKING

SAWING off large pieces of steel in one-fourth the time required by cross-cut machines is being accomplished at a plant in Detroit by the use of a metal bandsaw supported between two large pulleys and equipped with a roller table, jibs and automatic feed. The saw produces a clean cut without waste and eliminates much of the machining necessary in die-block stock when a cross-cut saw is used.



ASBESTOS lubricated with an acid-resisting compound is the base of a new type packing for acid lines in pickling departments. The packing is said to resist the action of hydrochloric or sulphuric acid at high temperatures.

♦ ♦ ♦

Applying a 600-pound thrustor to the safety brake and a 150-pound thrustor to the operating brake of a skip hoist at a graduated slag plant in the South, has eliminated severe strain on the driving motor, shaft and gears by providing a cushioning effect at the end of the skip travel.

♦ ♦ ♦

Increased cutting speeds of steel are claimed with a new cemented carbide material developed in Germany. Its composition is a mixture embodying a rare metal carbide. The material is manufactured by coating the cutting particles with a softer material, which serves as a binder, thoroughly mixing, pressing under heavy hydraulic power in a mold, and sintering in an electric furnace with an inert atmosphere at high temperature. The cementing process is similar to that employed for tungsten carbide. The metal resembles tungsten carbide in operating characteristics but does not replace it.

♦ ♦ ♦

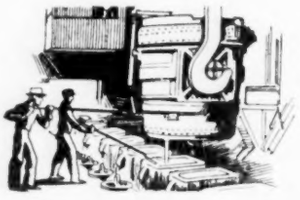
Internal seams in deep drawing steels are traceable to silica while external seams discernible during rolling and forging are traceable to blowholes near the surface, according to a well-known metallurgist. Both types of seams depend largely upon the method of deoxidation.

♦ ♦ ♦

Protection of pipe in storage against corrosive agencies is had by the application of a coating consisting of 90 per cent oil base, three-fourths being tung oil and the remainder other oils processed together under heat; and 10 per cent of finely dispersed zinc chromate.

♦ ♦ ♦

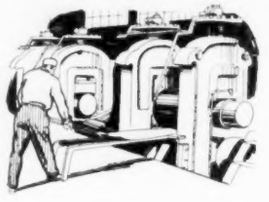
Cutting hot rods to specified lengths and transferring the cut sections from the runout table to the cooling bed are facilitated at an eastern mill by the use of photoelectric tubes for operating the shear and kickoff.



UNIFORM pouring temperature and elimination of difficulties traceable to the ladle and stoppers are effected by holding a low-carbon heat in the ladle about 10 minutes and a high-carbon heat from 15 to 20 minutes after tapping and then pouring it quickly into the mold through two $1\frac{3}{4}$-inch nozzles. According to an open-hearth superintendent, the use of two nozzles permits a 135-ton heat to be teemed in 29 minutes compared with 70 minutes when a single nozzle is used.

♦ ♦ ♦

Black plate now is being normalized at the rate of 5 tons an hour in continuous and automatic furnaces built with a heating and cooling zone. Control of the grain growth is secured by maintaining the pack temperature in both the heating and cooling zones through predetermined time cycles.



SHEETS under 96 inches long now are being rolled in double lengths on mechanically-equipped sheet mills, thereby effecting savings in shearing costs and scrap losses.

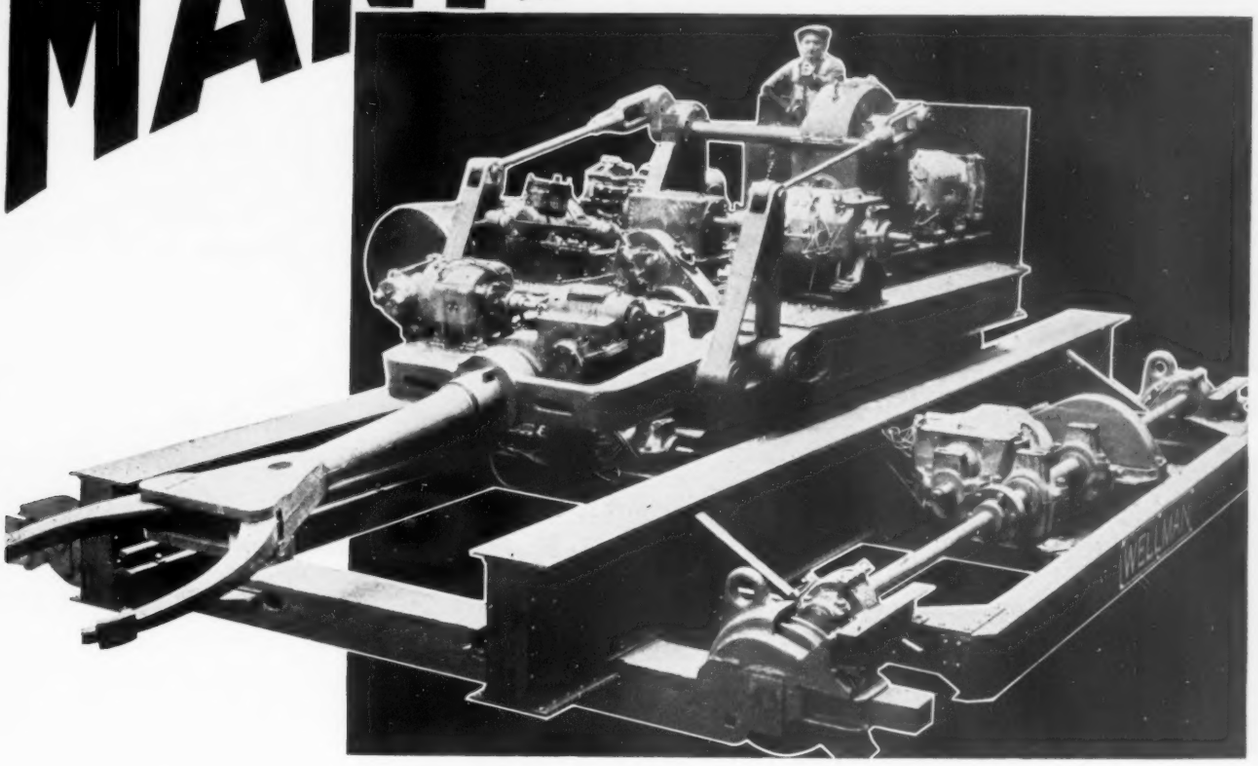
♦ ♦ ♦

Increasing the percentage of carbon and vanadium in the ratio of 0.2 per cent carbon for each 1 per cent vanadium greatly improves the cutting efficiency of cobalt high-speed steel, according to recent tests.

♦ ♦ ♦

Means for changing the angle of both the drive and idle rolls is embodied in an improved type cross-roll straightener. Full length line contact between the bar or tube and the drive rolls is maintained by a swiveling feature, thus imparting long roll life and eliminating the possible danger of spiralling the work through long operation on one side of the rolls. Changing the straightening centers is made possible by altering the position of the idle rolls longitudinally in their relation to the driven rolls by means of movable housings in which they are mounted.

MANIPULATORS



OTHER WELLMAN PRODUCTS:

- Steel and Tube Mill Equipment
- Gas Producers, Flues, etc.
- Gas Reversing Valves
- Car Dumpers, all types
- Coal and Ore Handling Equipment
- Williams Buckets and Trailers
- Coke Oven Machinery
- Charging Machines and Manipulators
- Blast Furnace Skip Hoists
- Safety Stops for Traveling Structures
- Special Cranes
- Mining Machinery
- Castings and Machine Work to customers' drawings

Wellman Engineering has contributed to many notable improvements in material handling practice

Wellman engineers have specialized in creating and building machinery for handling jobs of unusual difficulty and of huge size—for over half a century.

They have produced machinery which has won a name throughout the world.

What are YOUR problems? Let Wellman offer an efficient and economical solution.

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ENGINEERS CONSTRUCTORS MANUFACTURERS

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Scanning the Field of Technology

A Digest of Important Developments Pertaining to the Production, Processing, Application and Performance of Steel

Taking Photomicrographs At Low Magnification

By James Osborn Lord, in Transactions of the American Society for Steel Treating, July 1932, *p.* 1, 26 *pp.*, 24 *illusts.*

While the technique of high-power photomicrography has undergone rapid development in recent years, little attention seems to have been paid to the range of magnification between one and 20 diameters. This range of low-power photography, results of which are termed photomacrographs, frequently proves baffling to the novice because the principles involved are quite different from those of the higher magnifications and most laboratories do not have the special equipment required for such work.

This article discusses apparatus and methods that may be used in making photomacrographs at magnifactions ranging from one to 20 diameters. Three classifications of subject are considered: (1) Polished surfaces by vertical illumination. Here attention is directed principally toward the setup of apparatus in order to obtain uniform illumination.

(2) Rough surfaces of low relief. Here clear and natural portrayal of the object is considered.

(3) Rough surfaces, or objects, of high relief. This is chiefly a study of the geometrical principles of lenses to determine the limits of reducing the aperture of the lense to obtain depth of focus and to aid in making the proper selection of objectives for the work at hand.

—Steel, 8-1-32

Types of Automatic Electric Screwdown Control

By Ralph H. Wright, in Blast Furnace and Steel Plant, July 1932, *p.* 588, 2½ *pp.*, 2 *illusts.*, 1 *table.*

Automatic screwdown equipment may be either one of two types—preset or follow-up. In the preset type of control, means are provided for determining in advance the succession of roll settings for an entire rolling schedule. Once the setup is made, that particular rolling schedule can be repeated indefinitely. The control may be arranged so that changes in screwdown setting are initiated by an operator by means of a pushbutton or pass selector switch. Or, the action may be made entirely automatic by using light relays or other devices actuated by movement of the metal or mill.

The follow-up system permits making accurate hand adjustments from a remote point. This method of control may be applied to screwdowns, shear gages and similar devices where accuracy and flexibility are required but where hard and fast schedules of adjustments cannot be followed. In using the follow-up control, the operator is relieved of any necessity for inching of the control to obtain accurate settings, as the control automatically causes the motor to slow down and stop at the desired position. With either the preset or follow-up type of equipment the amount of equipment required depends upon the lift of the rolls and the accuracy of setting desired.

—Steel, 8-1-32

Forging of Chrome-Nickel Steel Is Studied

Western Machinery World, June 1932, *p.* 215, 3 *pp.*, 7 *illusts.*

Stainless or corrosion-resisting steels are as a rule difficult to forge and hard to machine. Not only do these alloys cover a wide range of analyses, but also slight variations in the percentages of alloying metals cause rapid and diverse changes in the physical characteristics. Recently the problem of rendering these steels easily machinable has been solved to some extent by the addition of higher sulphur, but the forging technique is still difficult, both in regard to heating and forming.

Experimental work conducted by a leading forge plant in Los Angeles has established the fact that one of the most vital points in the forging of this type of steel is a thorough preheating in a controlled furnace separate but adjacent to the forging furnace, the preheating requiring at least twice as long as for carbon steels. The line of demarcation between the preheat and forging heat is definite and is controlled by keeping the preheat temperature below the carbon precipitation point for the nickel steels and just under the grain growth range for the chromium steels. Rapidity in heating in the second furnace and during reheats while working is another vital factor in forging and second only to exact control of temperature.

—Steel, 8-1-32

Rail Flaw Detector Adapted to Other Uses

Automotive Industries, July 23, 1932, *p.* 112, 1 *p.*, 2 *illusts.*

An electrical method of nondestructive testing developed primarily for the detection of internal transverse fissures in rails appears to hold some interesting possibilities in testing other types of steel products. Refinements in the original apparatus and study of new applications are being made by the research staff of Sperry Products Inc., Brooklyn.

The electrical method of inspection may be applied to any magnetic material or electrical conductor. So far it has been used for the testing of bar stock, tubing, rails, etc., but may be adapted to such forms as crankshafts, steering knuckles, aircraft connecting rods and the like. The method depends upon the fact that current flowing through a section is compelled to pass around a fracture, inclusion or separation lying in the path of the current, this displacement being recorded on a chart.

—Steel, 8-1-32

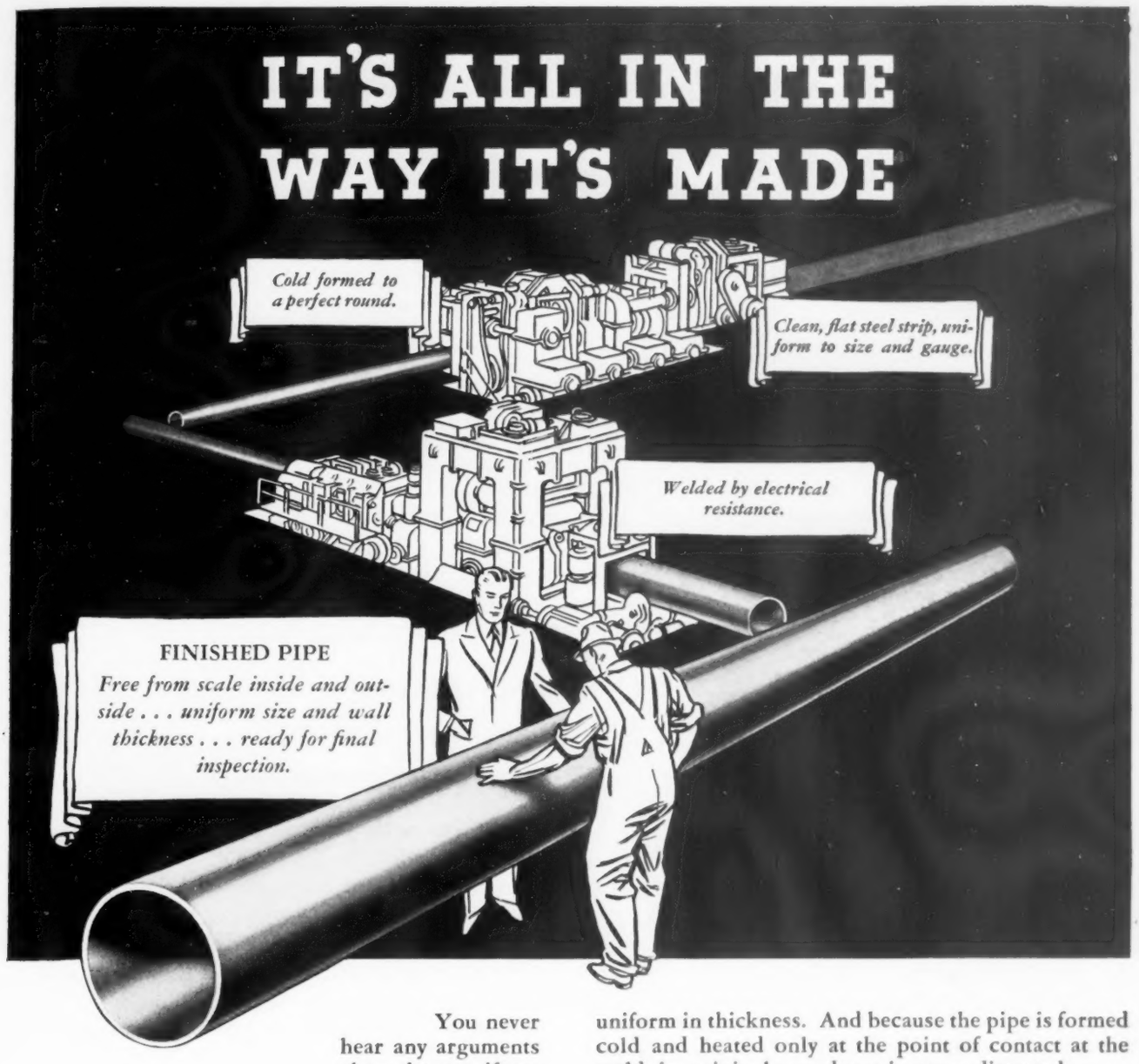
Progress Made in Field Of Production Welding

By H. O. T. Ridlon, Journal of the American Welding society, July 1932, *p.* 18, 3 *pp.*, 5 *illusts.*

Three principal factors are concerned with the science of production welding and cutting. They are: (1) Proper use of equipment; (2) production methods and use of jigs; and (3) the operator or human element. Manufacturers of welding equipment have made rapid strides in the development of their products to a high degree of efficiency and in education of operators in correct methods of handling this equipment. Under the leadership of the aircraft industry, production methods have been spurred on to greater refinement; careful alignment and widespread use of jigs is the order of the day. Close supervision of welders has done much to improve welding methods.

—Steel, 8-1-32

IT'S ALL IN THE WAY IT'S MADE


Cold formed to a perfect round.
Clean, flat steel strip, uniform to size and gauge.
Welded by electrical resistance.
FINISHED PIPE
Free from scale inside and outside . . . uniform size and wall thickness . . . ready for final inspection.

You never hear any arguments about how uniform the wall of Republic Electric Weld Pipe is—or how round it is—or how clean. And it's all because of the way it's made.

Flat strip steel rolled to uniform thickness is formed cold to a perfect round. This is the only process which insures the inside surface of the pipe being exactly the same as the surface of the strip from which it is formed. Then the edges under pressure are welded by the electrical resistance method—Johnson patents owned by Republic. Because the steel strip is not heated it forms no scale—the finished pipe is clean inside and outside. Because the strip is of uniform gauge the wall of the pipe is absolutely uniform in thickness. And because the pipe is formed cold and heated only at the point of contact at the weld, its original roundness is never distorted.

Translate these qualities into economies in pipe line installation—round ends that always meet, save welding time, make tight joints—pipe walls without thin spots, often permitting the use of lighter wall pipe just because of this insured uniformity of wall thickness—so clean that loose scale will not cause trouble when liquids start to flow through the line, and so smooth outside that it is particularly well suited for use with mechanical couplings of the Dresser type.

Read this again and then ask us to send you all the facts about Republic Electric Weld Pipe.

REPUBLIC STEEL CORPORATION

GENERAL OFFICES YOUNGSTOWN, OHIO

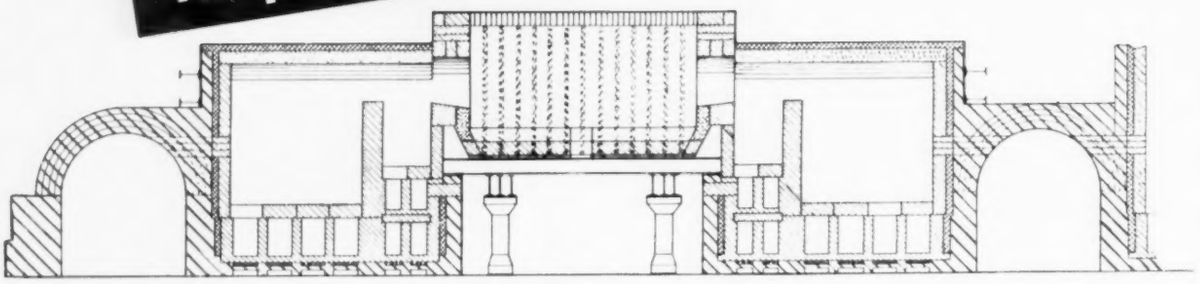
REPUBLIC

ELECTRIC WELD

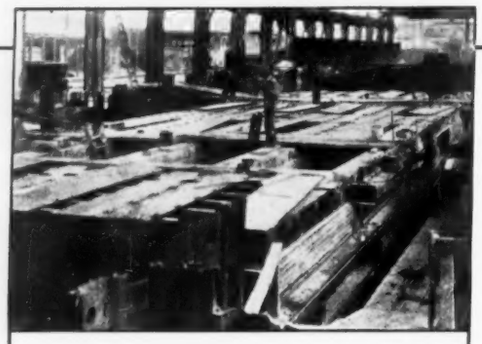
CASING · TUBING

INGOTS HEAT QUICKER

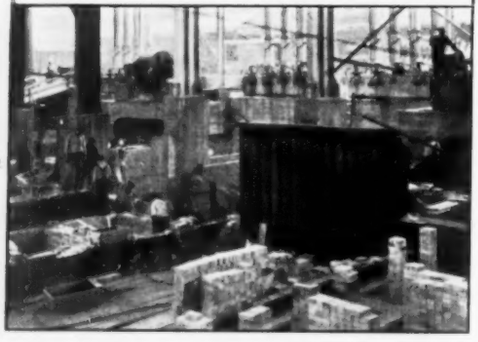
In pits walled this way!



4 HOLE SOAKING PIT FURNACE
DESIGNED AND BUILT BY
JAMES CRISWELL CO. PITTSBURGH PA.



HEAT STAYS INSIDE *these Criswell Soaking Pit Furnaces. Photographs and diagram show the construction of two 4-hole pits, designed by James Criswell Company for a large steel plant in the South. They are modern in every respect. Side walls, end walls, and regenerator arches are thoroughly insulated with Nonpareil Insulating Brick, made by Armstrong. The Criswell Company, with a long experience in designing and constructing melting and heating furnaces, state that they are "fully aware of the tremendous savings reverting to their clients on furnaces properly insulated."*



Criswell, pioneer builder of open hearths and soaking pits, saves for clients with proper insulation

INTO the soaking pits go the ingots. There, heat soaks them thoroughly in preparation for the blooming mill. How long will it take? How much fuel will be required to bring the ingots to the right heat?

In pits designed and built by James Criswell Company the time is shorter—less fuel is used. That's because Criswell specifies adequate insulation. This pioneer designer and builder of steel plant furnaces relies on Armstrong's and Nonpareil Insulating Brick to hold useful B.t.u's.

These two brick are especially suited for insulating steel plant furnaces. For one thing, both Armstrong's and Nonpareil Brick have high crushing strength. They withstand heavy strains. Both are machine-sized, too. That's a factor which makes for quicker laying up, and a tighter, more efficient wall. They are often laid up dry, which adds greatly to their high salvage value.

Armstrong's Insulating Brick are used for temperatures up to 2500° F. behind the refractory; Nonpareil up to 1600° or slightly over. Both have proved their efficiency through many years of service in leading plants. Prompt shipment can be made in any quantity from Beaver Falls, Pa., to all parts of the country. We will gladly send you samples and complete technical data on request. Armstrong Cork & Insulation Company, 920 Concord Street, Lancaster, Pa.; Canadian offices in Montreal, Toronto, and Winnipeg.

Armstrong's (A) *Product*

Armstrong's and Nonpareil Insulating Brick

High Temperature Insulation for Industrial Furnaces

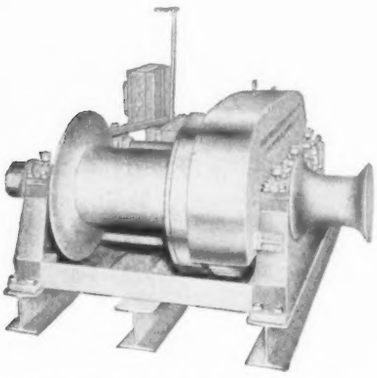
NEW EQUIPMENT

PRODUCTION FABRICATION TREATMENT FINISHING

Designs New Type Drum and Capstan Car-Puller

Fridy Hoist & Machinery Co., Mountville, Pa., has developed a new combination drum and capstan car-puller for "spotting" a train of loaded railroad cars at slow rope speed. The new unit supersedes the former type which has been on the market for the past 12 years. This car-puller is furnished in 7½, 10, 15 and 20 horsepower meter ratings.

A double V-shape friction clutch and improved type of screw thrust assures of a positive grip and release of the drum by a slight movement of the operating lever, protecting both the



Fridy combination drum and capstan car-puller for "spotting" cars

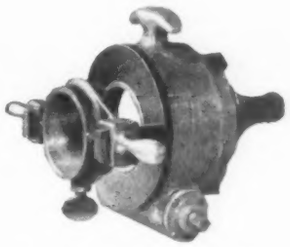
motor and mechanical construction of the car-puller against excessive strains and overloads when starting a heavy haul. A triple spur gear drive of steel is furnished and enclosed in an iron housing as shown in the accompanying illustration, the main operating lever, motor control switch and foot brake being located within easy reach of the operator.

◆

Shaped Welding Nipples Eliminate Templates

Midwest Piping & Supply Co. Inc., St. Louis, has recently placed on the market a line of shaped welding nipples which eliminate all templates when saddling one pipe upon another. The nipple is placed in position before the opening is cut in the pipe upon which it is to be saddled; the correct opening then is easily and quickly traced from the nipple contact line. Both the shaped end and the square end are beveled for welding.

Midwest shaped nipples, both 90 and 45 degrees are made regularly from standard weight and extra heavy wrought steel pipe and genuine wrought iron pipe in sizes from 1¼ to 12-inch inclusively. On special order they can be provided with any type of forged lap or flange. Other angles, lengths and sizes are also available on application.



Beaver power adapter has driving socket

◆

Develops Power Adapter For Die Heads

Borden Co., Warren, O., recently developed a power adapter which is a worm-driven die stock using interchangeable die heads to thread all sizes and kinds of pipe from ½ to 2-inch. The unit is operated by means of a ¾-inch heavy-duty electric drill, or a compressed air drill if desired.

Of aluminum alloy construction, the power adapter weighs about 17½ pounds. On the rear it has a self-centering chuck to hold it squarely and firmly on the pipe, on top—a convenient grip for easy handling. The double-ended drive enables the operator to cut right or left-hand threads. The unit is shown at left.

New model Sharples oil purifying unit is complete plant

◆

Forced-Feed Faucet Extracts Plastic Compounds

Key Boiler Equipment Co., East St. Louis, Ill., recently introduced a new type of forced-feed faucet for extracting plastic compounds, cement and other slow-flowing mixtures from bulk containers. It is adaptable for use on drums equipped with standard 1½-inch openings.

LeMay forced feed faucet marketed by Key Boiler Equipment Co.

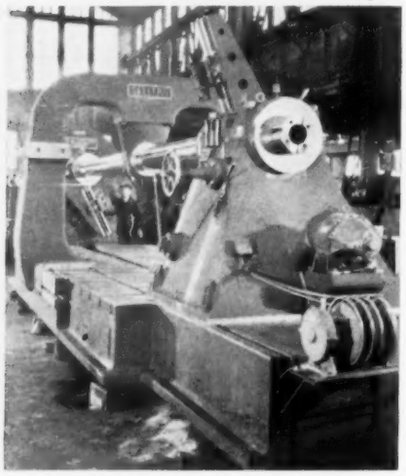
The LeMay faucet as it is designated, is shown in the accompanying illustration. The crank-driven worm provides a smooth, even flow and keeps the material mixed to the proper consistency.

◆

Oil Purifying Plant Designed As Combined Unit

Sharples Specialty Co., Twenty-third and Westmoreland street, Philadelphia, is marketing a new model complete oil purifying plant designed particularly for purification of diesel engine fuel and lube oil, turbine lube and other miscellaneous types of oil. The unit combines an oil purifier of high centrifugal force with pumps, heaters, pushbutton controls and accessories, all mounted on a common base, and piped and wired together so that the installation requires but two pipe connections and one electrical connection.

A centrifuge of the enclosed vaportite model is employed to remove impurities such as dirt, grit, carbon,



Special cylinder boring and facing machine built by Wm. Sellers & Co.

sludge and water from the oil. It develops a force of over 13,000 times gravity. The oil purifying plant is shown in the illustration at bottom of center column on page 37.

◆

Builds Large Boring and Facing Machine

William Sellers & Co. Inc., Philadelphia, recently completed a special cylinder boring and facing machine, built for the National Transit Pump & Machine Co., Oil City, Pa. Although the unit, shown in the accompanying illustration, is designed to bore and face, at one setting, the cylinders and guides of large engine and booster pumps, it will handle cylinders of almost any kind.

Largest cylinder that can be faced is 96 inches diameter and the maximum length of work that can be accommodated it 22 feet. The boring bar is supported by two heads, one of which is stationary and serves as a driving unit, while the other, the tailstock, is adjustable longitudinally on the main bed. Each head has a heavy facing arm driven by the bar but mounted directly on a long stiff revolving sleeve in the head, through which the bar passes.

◆

Designs Cup Brush to Remove Paint and Scale

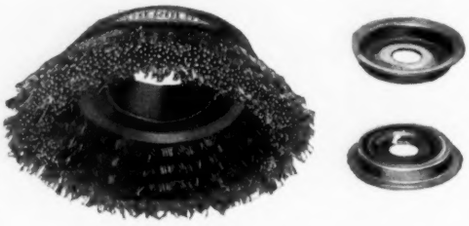
Herold Bros., West Ninth street, Cleveland, is manufacturing a line of cup brushes for removing paint and scale from metal surfaces, etc. These brushes, depicted in the accompanying illustration, are a special form of circular brush designed for use on flat surfaces or interiors in conjunction with some form of rotary hand tool, the wires being set forward so as to form a ring in which all wire ends acts on the work at the same time.

The circular brush wire unit is made in the ordinary way and then is forced under heavy pressure into a cup-shaped stamping which deflects the ends of the wires in the required direction. A strong locking ring is placed on the other side of the wire assembly and seamed into position while still under pressure.

◆

Stainless Sheet Polishing Process Is Continuous

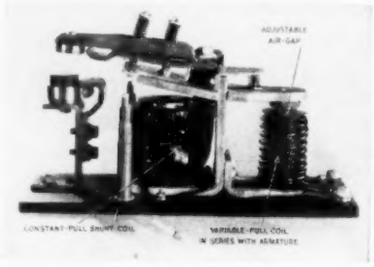
Excelsior Tool & Machine Co., East St. Louis, Ill., recently placed on the market a special machine designed for polishing large stainless steel sheets. The process is continuous, sheets being polished to a commercial finish in one pass under a series of belts. Any width up to 60 inches by 144 inches or longer can be handled. The sheets are placed end to end on the endless conveyor, passing under the roughing and polishing belts at a continuous speed.



Herold cup brush for removing paint, scale from metal surfaces

A holddown arrangement to prevent shifting of the sheets consists of rollers spaced equidistant on each side of the polishing belts. These belts are endless and are 7 inches wide and 8 feet in length, operating over two end pulleys. The inside pulleys are driven direct from 10 horsepower motors with a specially constructed intermediate idler pulley located between them for the purpose of contacting the polishing belt with the sheet.

The six-belt machine illustrated herewith requires a floor space of 38 x 18 feet. Weight is approximately 32,000 pounds. Any of the polishing belts can be removed when dull, and replaced in two minutes without interferring with the production of continuous operation of the remainder of the spindles. The belts are reset easily with the desired grain abrasive from 90 to 400, by the use of a special fixture designed for the purpose.



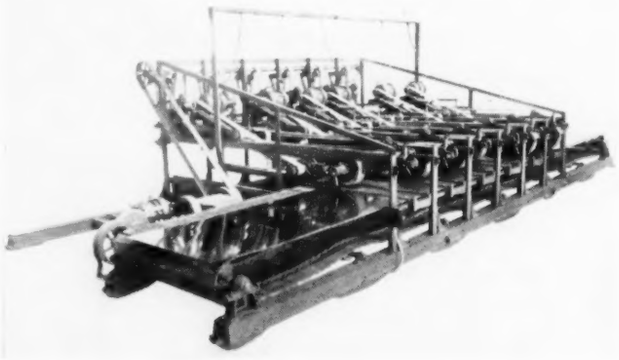
Monitor accelerator for starting direct-current motors

◆

Electro-Magnetic Balance Features Accelerator

Monitor Controller Co., Baltimore, has introduced an accelerator for starting direct-current motors. The unit is is shown in the accompanying illustration. One side of the accelerator has a shunt coil with a constant pull; the other a variable pull coil connected in series with the motor armature. Starting with a pull one and a half times that of the constant pull coil, the variable pull coil gradually exerts less and less pull, as the motor speeds up, until the balance swings over and the switch is closed at the proper amount. This application of electro-magnetic balance to produce constant torque acceleration features the unit.

FRONT view of Excelsior automatic stainless steel polishing machine, showing partially polished sheet passing under the six abrasive belts



Announcing
CRYSTAL ETCHED
a new and vastly-improved
ARMCO
ENAMELING IRON

FROM the modern laboratories and mills of the pioneer maker of enameling iron comes a new and significant development, of vital interest to every enameler—*Crystal Etched* Armco Enameling Iron.

Always searching and experimenting in Armco Laboratories, and studying practices and results in customers' plants throughout the world, Armco Metallurgists and Engineers enthusiastically approve Armco Enameling Iron—*Crystal Etched.*

This new product possesses several exceptional advantages, chief of which is:

Extraordinary improvement in enamel-gripping and holding properties

The possibility of chipping and flaking, a costly and annoying experience, is now definitely reduced through the superior bonding action of *Crystal Etched* Armco Enameling Iron. In addition, the hazard of reboiling, troublesome in some plants, has been greatly diminished.

Remember, that besides the exceptional adhesive properties of Armco Enameling Iron, *Crystal Etched*, you are assured the same highly-refined and uniform composition that has long made it the preferred metal of exacting enamelers.

Look into the greater profit possibilities and lowered operating costs that go with this markedly improved enameling iron. Our nearest office will give you full details.

The American Rolling Mill Company

Executive Offices: Middletown, Ohio

DISTRICT OFFICES: *Boston . Chicago . Cleveland Detroit . Middletown . New York . Philadelphia Pittsburgh . St. Louis . San Francisco*

THE WORLD'S STANDARD ENAMELING IRON

Today...

you're checking costs

YOU know in terms of product-unit-cost the price you pay for material, labor, machine time and overhead.

Wire, a most insignificant item when viewed as a cost, often materially influences the other items. Quality wire that is uniform permits maximum speed, thus cuts down labor charges and overhead. The correct wire for your particular purpose may operate continuously when an inferior wire would cause interruption through breakage of product or tools. Proper wire always reduces rejects.

Wissco wire is not only the highest quality wire in its every type and form, but its sales are backed by an Engineering Service that will gladly recommend a kind of wire to reduce your other costs to a minimum. Ask the Wissco salesman to get a report upon your operation.

•

Wickwire Spencer Steel Company, 41 East 42nd Street, New York City; Buffalo, Chicago, Detroit, Philadelphia, Tulsa, Worcester; Pacific Coast Headquarters: San Francisco; Warehouses: Los Angeles, Portland, Seattle. Export Sales Department: New York City

WISSCO WIRE

by Wickwire Spencer

Wickwire Spencer manufactures High and Low Carbon Wires—in various tempers, grades and finishes—for your specific purpose. Hard-Drawn, soft, or annealed Basic or Bessemer Wires—Hard-Drawn annealed, or oil-tempered Spring Wire, Chrome Vanadium Spring Wires—Valve Spring—Music—Clip—Pin—Hairpin—Hook and Eye—Broom—Stapling—Bookbinding—Machinery Spring Wire—Reed Wire—Clock—Pinion—Needle-Bar—Screw Stock—Armature Binding—Brush—Card—Florist—Mattress—Shaped—Rope—Welding. Flat Wire and Strip Steel, High or Low Carbon—Hard, annealed or tempered—Clock Spring Steel—Corrosion and Heat Resisting Wires. Consult the Wissco technical man on your wire problems, however large or small.

More Backing for Improved Sentiment in Steel

Belief in Fall Upturn Persists, Supported by Heavier Structural Awards, More Railroad Activity and Slight Gain in Ore Releases

SENTIMENT in iron and steel that the next turn will be upward is deep-seated enough to survive even an avalanche of financial statements showing that the losses of the industry in the second quarter averaged $13.78 per ton of ingots produced, or more than half the cost, compared with a deficit of $7.72 per ton in the first quarter.

Continuance of the 16-17 per cent steel operating rate of the past two weeks into the week beginning July 31 indicates that actual demand has not accelerated appreciably, but outcroppings that foreshadow better demand are more numerous. In fact, sentiment threatens to become as over-optimistic as it was over-pessimistic recently, and leaders of the industry prefer making progress slowly but surely.

Most significant of the week's developments is the decision of several Middle West buyers of Lake Superior iron ore to expand their releases for this season. The additional tonnage is comparatively small, but this is the first reversal in the tendency to whittle shipments down.

No small hopes for a fall upturn are predicated upon the railroads, which are a little more active in the steel market. Carnegie Steel Co. is opening its Edgar Thomson rail mill and some open-hearths for a short run. Two eastern roads are considering buying 25 locomotives, and one eastern carrier 3000 tons of rails. A Philadelphia maker has booked 40 street cars for Indianapolis.

After several slack weeks structural steel awards have jumped to 24,957 tons, considerably above the weekly average for the year to date and fifth largest weekly total this year. Included are 5100 tons of sheet piling for government work on the Mississippi and 5500 tons for the Newark, N. J., postoffice. Concrete reinforcing bars will participate heavily in the $120,000,000 federal allotment for highway construction in the year ended next June 30.

An inquiry at Philadelphia for 2500 tons of hot-rolled strip is the largest in a number of weeks. Automotive specifications for bars at Chicago, while not broad, are better sustained than expected. In several markets releases for plates are more numerous and longer price protections are being sought. Sheet mills at Pittsburgh look for improved demand in August for early assembly of new 1933 automobile models.

In raw materials the same lift in sentiment as in steel is evident. Chicago and Cincinnati note more future interest in pig iron. Steel scrap in practically all districts needs only the impetus of a few orders to put prices up. A Hamilton, Ont., consumer has bought 5000 tons of steel scrap in the New York district and a Nova Scotia melter has placed a repeat order for 2500 tons at Boston.

What appears to be a distressing decline of 35 per cent in exports of iron and steel in June, to 52,081 tons, is tempered by the fact the May total was exaggerated by an unusual movement of scrap to Japan, and the settlement in June is scarcely more than seasonal. Imports decreased 13 per cent, to 34,494 tons in June, maintaining a favorable balance of trade. Imports in the first half of 1932 equaled 2.7 per cent of domestic output, almost double the 1.5 per cent of a year ago.

Following the example in other products, manufacturers of tin plate may attempt to terminate wide differentials to preferred buyers. New extras on forging bars will tend to eliminate the substitution of ordinary merchant bars and raise the price to most consumers.

Generally, the price situation is steady, the iron and steel composite of STEEL being unchanged at $29.46, of finished steel at $47.71 and of scrap at $5.96.

Composite Market Averages

	July 30	July 23	One Month Ago June, 1932	Three Months Ago April, 1932	One Year Ago July, 1931	Ten Years Ago July, 1922
Iron and Steel Composite	$29.46	$29.46	$29.54	$29.75	$31.05	$37.50
Finished Steel Composite	47.71	47.71	47.64	47.62	48.68	53.74
Steelworks Scrap Composite.....	5.96	5.96	6.62	7.76	8.70	14.87

Iron and Steel Composite:—Pig iron billets, slabs, sheet bars, wire rods, pipe, tin plate, nails, sheets, plates, shapes, bars. Finished Steel Composite:—Plates, shapes, bars, hot strip, nails, tin plate, pipe. Steelworks Scrap Composite:—Melting steel, compressed sheets.

Comparative Prices of Iron, Steel and Coke

Representative Market Figures for Current Week, Last Month, Three Months and One Year Ago

	July 30, 1932	June 1932	April 1932	July 1931
PIG IRON				
Bessemer, del., Pittsburgh	$15.76	15.95	16.76	18.26
Basic, valley	14.00	14.50	15.00	17.00
Basic, eastern, del., eastern Pa.	14.00	14.50	15.00	16.75
No. 2 foundry, del. Pittsburgh	15.76	16.01	16.26	18.26
No. 2 foundry, Chicago	15.50	16.00	16.00	17.50
*Southern No. 2, Birmingham	11.00	11.00	11.00	12.00
**No. 2X, Virginia furnace	18.00	18.00	18.00	18.00
**No. 2X, Eastern del. Phila.	14.76	14.76	15.66	17.51
Malleable, valley	14.50	14.50	15.50	17.00
Malleable, Chicago	15.50	16.00	16.00	17.50
Lake Superior, charcoal, del. Chi.	23.04	23.04	23.04	27.04
Gray forge, del. Pittsburgh	15.63	15.63	16.13	17.63
Ferromanganese, del. Pittsburgh	73.24	74.99	80.24	89.79

*1.75-2.25 silicon. For local delivery. Northern shipments based on $10, Birmingham. **2.25-2.75 silicon.

Delivered pig iron prices subject to 10 per cent freight surcharge, maximum 13.44c per gross ton, beginning Jan. 4, 1932.

COKE				
Connellsvile, furnace, ovens	2.00	2.00	2.25	2.40
Connellsville foundry, ovens	3.00	3.00	3.25	3.25
SEMIFINISHED MATERIAL				
Sheet bars, open-hearth, Youngs.	26.00	26.00	26.00	29.00
Sheet bars, open-hearth, Pitts.	26.00	26.00	26.00	29.00
Billets, open-hearth, Pittsburgh	26.00	26.00	27.00	29.00
Wire rods, Pittsburgh	37.00	37.00	37.00	35.00

	July 30, 1932	June 1932	April 1932	July 1931
FINISHED MATERIAL				
Steel bars, Pittsburgh	1.60	1.60	1.60	1.60
Steel bars, Chicago	1.70	1.70	1.70	1.70
Steel bars, Philadelphia	1.91	1.91	1.91	1.89
Iron bars, Chicago	1.65	1.65	1.70	1.70
Shapes, Pittsburgh	1.60	1.60	1.60	1.60
Shapes, Philadelphia	1.75	1.75	1.75	1.76
Shapes, Chicago	1.70	1.70	1.70	1.70
Tank plates, Pittsburgh	1.60	1.60	1.60	1.60
Tank plates, Philadelphia	1.79½	1.79½	1.79½	1.80½
Tank plates, Chicago	1.70	1.70	1.70	1.70
Sheets, No. 10 blue anneal., Pitts.	1.70	1.70	1.70	1.85
†Sheets, No. 24, hot, ann., Pitts.	2.20	2.20	2.20	2.40
Sheets, No. 24, galvan., Pitts.	2.85	2.85	2.85	2.90
Sheets, No. 10 blue anneal., Chi.	1.85	1.85	1.85	2.00
†Sheets, No. 24, hot ann., Chi.	2.35	2.35	2.35	2.55
Sheets, No. 24 galvan., Chi.	3.00	3.00	3.00	3.00
Plain wire, Pittsburgh	2.20	2.20	2.20	2.20
Wire nails, Pittsburgh	1.95	1.95	1.95	1.85
Tin plate, per base box, Pitts.	4.75	4.75	4.75	5.00

†Comparisons are with old classification No. 24 black sheets.

SCRAP				
Heavy melting steel, Pitts.	$8.25	9.00	10.20	10.50
Heavy melting steel, eastern Pa.	6.25	6.25	7.20	8.55
Heavy melting steel, Chicago	4.75	5.60	6.55	8.50
No. 1 wrought, eastern Pa.	6.25	6.25	9.50	9.75
No. 1 wrought, Chicago	4.25	4.75	5.85	8.25
Rails for rolling, Chicago	6.75	7.75	8.90	10.50

Sheets

July Marks Low Point—Little Improvement in View for August—Motorcar Tonnage Off

SHEET PRICES, PAGE 43

Pittsburgh—There has been a slight decline in demand for sheets, the last week of July going down as the lowest point in a low month. There is little indication of noteworthy improvement in August. Automotive orders may improve the latter part of August, owing to the fact that several inquiries for tools and dies forecast new automobile models to swing into production probably as early as September. No further buying by Hudson-Essex is noted, and it is understood many of the parts requiring sheet steel were fabricated from stock on hand. Prices vary in many instances, but in general, hot-rolled sheets are 1.55c for heavy gage, and 2.20c for light gage. Heavy cold-rolled are 2.25c, with light material 2.75c. Galvanized are quoted 2.85c in the open market.

Boston—Lack of building has restricted demand for sheets, and manufacturing needs also are light. Prices are fairly firm.

Philadelphia—Except for galvanized sheets, in which some price irregularities have developed, the sheet market is steady. A test in another grade is expected because some sizes near the strip range are being figured on a tentative inquiry for 2500 tons, largely hot strip.

New York—Sheet buying remains spotty, with continued light building a depressing influence. Jobbers' requirements are practically nil. Prices are untested.

Youngstown, O.—Largely through accumulation of specifications for common grades of sheets, certain independent mills this week have increased the number of active units. A little more new business has been placed by stampers of automobile parts, stove and range builders, and agricultural implement makers. Prolongation of the automotive season this year has lengthened the period of activity at sheet mills. But this has not been sufficient to offset the decline in demand from other sources.

Cleveland—Volume of July sheet specifications was below June, and makers do not anticipate much change in August. All refrigerator manufacturers are continuing to produce some units, but their schedules are greatly reduced from these in June; barrelmakers are not buying extensively, and demand for furniture sheets is quiet. Fisher Body Co., here, continued to operate four days last week, but will drop to three days this week. It is finishing up rapidly on units for the present Chevrolet models, but may begin Sept. 1 on new models. This will mean additional sheet releases. Heating and ventilating contractors' bids for Cleveland's underground auditorium were rejected because of difficulties arising over 11 alternates, and new bids are being taken to Aug. 11. On approximately 165 tons of galvanized sheets, contractors say, mill prices submitted were at the open market level of 2.85c, base, Pittsburgh.

Cincinnati—Firmer prices are evident at sheet mills in this district, one reflection of a more cheerful business outlook. Specifications for new automobile models have been meager.

Chicago—Despite a more hopeful outlook, recent activity in sheets has shown but slight change. Orders are insufficient to raise operations much above 15 per cent and buying is confined to small lots. Producers are hopeful for a moderate improvement during August. Prices are steady.

St. Louis—Numerous small inquiries indicate small consumer inventories. Galvanized material is making a relatively good showing, the local producer reporting July business about equal to that a year ago.

Birmingham, Ala. — Both sheet mills here are operating steadily, though not at capacity. Demand has shown a little improvement recently.

Current Finished Steel Prices

Delivered prices subject to freight surcharge corrected to nearest ½c. Asterisk denotes price change this week

Steel Sheets

HOT ROLLED No. 10
(24 to 48 inches wide)

Pittsburgh, base	1.55c
Gary, Ind. Harbor, base	1.65c
Chicago, del.	1.70c
New York, del.	1.90c
Birmingham, base	1.70c
Philadelphia, del.	1.86c

BLUE ANNEALED NO. 9-10

Pittsburgh, base	1.70c
Chicago, district mills	1.80c
Chicago, delivered	1.85c
Philadelphia, del.	2.01c
New York, del.	2.05c
St. Louis, delivered	2.07½c
Birmingham	1.85c
San Francisco c.i.f.	2.32½c

HOT ROLLED ANNEALED NO. 24

Pittsburgh, base	2.20c
Gary, Ind. Harbor, base	2.30c
Chicago, del.	2.35c
New York, del.	2.55c
Philadelphia, del.	2.51c
Birmingham, base	2.35c
St. Louis, del.	2.57½c
San Francisco, c.i.f.	2.85c

GALVANIZED NO. 24

Pittsburgh, base	2.85c
Gary, Ind. Harbor, base	2.95c
Chicago, del.	3.00c
Philadelphia, del.	3.16c
Birmingham, base	3.00c
St. Louis, del.	3.22½c
San Francisco, c.i.f	3.50c

AUTOMOBILE NO. 20

Pittsburgh, base	2.80c to 2.90c

FURNITURE

Pitts., No. 10 heavy	2.65c
Pitts., No. 20 light	3.15c

TIN MILL BLACK NO. 28

Pittsburgh, base	2.40c to 2.50c
Gary, base	2.50c to 2.60c
St. Louis, del.	2.77½c to 2.82½c

HEAVY COLD ROLLED NO. 10

Pittsburgh, base	2.25c
Gary, Ind. Harbor, base	2.35c
Chicago, del.	2.40c
Philadelphia, del.	2.56c
New York, del.	2.60c
St. Louis, del.	2.62½c

COLD ROLLED NO. 20

Pittsburgh, base	2.75c
Gary, Ind. Harbor, base	2.85c
Chicago, del.	2.90c
Philadelphia, del.	3.06c
New York, del.	3.10c
St. Louis, del.	3.12½c

TIN AND TERNE PLATE
Per 100-pound box, Pittsburgh

Tin plate, coke base	$4.75
Long ternes, 24, unassort	3.00c

Gary, Ind., base 10 cents higher

Wire Products

(Prices apply on straight carloads. Mixed and joint carloads take 10 cents higher price; pool carloads 25-cent advance; less carloads 40-cent advance.)
F.o.b. mills, 100 lb. keg

Standard wire nails	$1.95
Cement coated nails	1.95
Galvanized nails	3.95
(Per pound)	
Polished staples	2.50c
Galvanized staples	2.75c
Barbed wire, gal.	2.60c
Annealed fence wire	2.35c
Galvanized wire	2.80c
Woven wire fencing, (9-11 ga.)	$55.00
(12½ ga. and lighter)	$60.00
(To Manufacturing Trade)	
Plain wire, 6-9 gage	2.20c
Spring wire	3.20c

Chicago and Anderson, Ind., $1 over Pitts.-Cleve.; Duluth and Worcester, $2 higher; Fairfield, Ala., $3 higher.

Steel Plates

Pittsburgh, base	1.60c
Philadelphia, del.	1.79½c
New York, delivered	1.90c
Boston, delivered	2.02c
Buffalo, del.	1.85½c
Chicago, base	1.70c
Cleveland, del.	1.78½c
Birmingham, Ala., base	1.75c
Coatesville, Pa., base	1.70c
Pacific Coast, c.i.f.	2.00c
St. Louis, del.	1.97½c

Structural Shapes

Pittsburgh, base	1.60c
Philadelphia, del.	1.75c
New York, del.	1.87c
Boston, del.	2.00½c
Chicago, base	1.70c
Cleveland, del.	1.78½c
Lackawanna, N. Y., base	1.70c
Birmingham, Ala., base	1.75c
Pacific Coast, c.i.f.	2.10c
Do., wide flange	2.20c

Bars

SOFT STEEL

Pittsburgh, base	1.60c
Chicago, base	1.70c
Birmingham, Ala., base	1.75c
Lackawanna, N. Y., base	1.70c
Pacific Coast, c.i.f.	2.00c
Cleveland, base	1.65c
*Philadelphia, del.	1.81c to 1.91c
New York, del.	1.90c
Boston, del.	2.02c
Pittsburgh, cold finish	1.75c
Pittsburgh, forg. qual.	1.85c
San Francisco, c.i.f.	2.10c

RAIL STEEL

Chicago Heights	1.50c
*Eastern mills	1.30c to 1.45c

IRON

Chicago, base	1.65c
New York, delivered	1.85c to 1.95c
Philadelphia, delivered	1.86c to 1.96c
Pittsburgh, refined	2.70c to 4.20c

REINFORCING

Pitts., billet cut lengths	1.75c
Pitts., stock lengths, mill	1.60c
Chi., billet	1.60c to 1.75c
Chi., rail steel	1.45c
Chi., rail steel, road, bridge and culvert	1.45c
Philadelphia, cut lengths	2.06c
Cleveland, cut lengths	1.75c

Cold-Finished Bars, Shafting

Min. 10,000 lbs. of kind and grade

Pittsburgh	1.70c
Chicago, Buff., Cleveland	1.75c
Detroit	1.90c
Eastern Michigan	1.95c

Corrosion, Heat Resist. Alloys

Base, Pittsburgh

18 per cent chrome, 8 per cent nickel
Sheets, 35c; plates, 31c; bars, 28c.

	A	B	C	D
Bars	19c	20.5c	23c	28c
Plates	21c	22.5c	25c	30c
Sheets	26c	27.5c	30c	35c
Hot Strip	19c	20.5c	23c	28c
Cold strip	25c	26.5c	29c	34c

Carbon 0.12 and under; no nickel. A has chrome 15% and under. B over 15/18% inc., C over 18/23% inc., D over 23/30%.

Wrought Washers

Carloads, Pitts. dist	$6.50 to 6.75 off
Carloads, Chicago dist	7.00 to 7.50 off

Alloy Steel

Hot Rolled—F.o.b. Mills
Alloy Quality Bars, 2.65c, mill
(Differentials to various classes of consumers)

S.A.E.	Alloy Diff.	
2000	0.25	4600 .20 to .30 Mo. 1.25-1.75 Ni. 1.05
2100	0.55	5100 .80 - 1.10 Cr. 0.45
2300	1.50	51.00 Cr. spring 0.20
2500	2.25	6100 bars 1.20
3100	0.55	6100 Spring 0.95
3200	1.35	Cr., Ni., Van. 1.50
3300	3.80	Carbon Van. 0.95
3400	3.20	9250 (flats) 0.25
4100 .15 to .25 Mo.	0.50	9250 (rds.,sq.) 0.50

Strip, Hoops, Bands

Hot-rolled strip up to 23 15/16 in. wide, Pitts.	1.45c to 1.50c
Do, Chicago	1.55c to 1.60c
Do., del. Philadelphia	1.76c to 1.81c
Do., del. NewYork	1.80c to 1.85c
Cooperage hoop, Pitts.	1.55c to 1.60c
Do., Chicago	1.65c to 1.70c
Cold-roll, strip, Pitts., Cleve.	2.00c
Worcester, 3 tons over	2.20c

Rivets

Struc., c.l., Pitts.-Cleve.	2.25c
Struc., c.l., Chicago	2.35c
7/16-in. and smaller, Pitts., Chicago, Cleve.	70, 10 and 5 off

Rails, Track Material

Standard rails, mill	$43.00
Relay rails, Pitts., 20 to 45 lbs.	$21.00 to 23.00
50 to 75	18.00 to 20.00
80 to 100	24.00 to 27.00
Light rails, 25-45, mills	$32.00
Light rails, Chicago	$34.00
Angle bars, mills	2.75c
Spikes, railroad, mills	2.60c
Spikes, boat, barge, Pitts.	2.75c
Track bolts, Chicago	3.50c
Do, standard, jobbers	73 off list
Tie plates, mills	$37.00

Bolts and Nuts

Pittsburgh, Cleveland, Birmingham, Chi. Discounts to legitimate jobbing or large consuming trade for full-case lots apply to May 10, 1930, lists.

CARRIAGE BOLTS

All sizes, cut thread ..... 75 off
Rolled thread ⅜ x 6 and smaller take 10 per cent lower list.
Eagle list ..... 75 off

MACHINE BOLTS

All sizes, cut thread, lag screws, plow bolts, Nos. 1-2-3-7 heads, tap bolts, blank bolts, stud bolts without nuts ..... 75 off
Tire bolts ..... 60 and 10 off
Stove bolts, 77½, 25 and 10 off in pkgs.; 86 off in bulk.
Rolled thread machine bolts, ⅜ x 6 and smaller take 10 per cent lower list.

NUTS

Semifinished ..... 75 off

HEXAGON CAP SCREWS

Milled ..... 80-25 off
Upset 1 in. diam. and smaller 80-25-10 off

SQUARE HEAD SET SCREWS

Upset, 1 in. and smaller ..... 75-10-10 off
Headless set screws ..... 75-10 off
Upset, larger than 1 in ..... 75-10 off

Cut Nails, Chain, Piling

Cut nails, c.l. Pittsburgh	$2.50
Do. less carloads, 5 kegs or over	$2.90
Less than 5 kegs	$3.05
Chain, BB, BBB, 9/16-1½ in.	33 1/3 off
Steel sheet piling, Pitts.	1.90c

Bars

Forging Quality Extras Revised —Automotive Tonnage Declines —Demand Fails to Grow Better

BAR PRICES, PAGE 43

Pittsburgh—It is reported forging bar producers have announced revised forging extras for quality, effective immediately on new business and for general application for fourth quarter. Forging bars equivalent in area to a 1-inch square and under are designated as base unless commercial or forging quality is desired when $3 or $5 extra for quality applies. Bars equivalent in area from 1-inch to 1½-inch square take a $3 extra for commercial bar forging. All forging bars equivalent in area to a 1½-inch square and over take a $5 extra for special bar forging. This move has been made to rectify a condition in certain consuming centers in the East where merchant bars have been substituted as forging stock to the forgers without charging the usual extra. The change will bring the market in line with certain centers where regular special forging extras of $5 a ton have been maintained on all sizes where special forging quality is specified. Soft steel bar demand here is still quiet and the price of 1.60c is firm.

New York—While sellers of commercial bars expect improvement this fall, particularly from railroads, no evidences of an immediate pick-up in demand are apparent. Meanwhile, prices are steady at 1.60c, Pittsburgh, a figure that also applies on common iron bars.

Philadelphia—Commercial steel bars are steady at 1.60c, Pittsburgh, with sellers anticipating little improvement before September. Common iron bars are also 1.60c, Pittsburgh.

Washington—Award of about 252 tons of medium bar rivet steel for the navy is announced. Pacific Coast Steel Corp. took 172 toss for Mare Island and Puget Sound at $7344.40, delivered. Joseph T. Ryerson & Son Inc. booked about 80 tons for Brooklyn, N. Y., Philadelphia, Hampton Roads, Va, and Charleston, S. C., at $3466.20, delivered

Youngstown, O.—Steel bar needs appear to have sagged off somewhat after fair demand for several weeks. This has resulted in the Ohio works of Carnegie Steel Co. going down for an indefinite period. It has been working on the basis of two weeks on and two off since June.

Cleveland—Though improved sentiment is apparent, this has not yet been translated into actual orders. Some makers report a gain in the number of small shipments to consumers who have been out of the market a long time. Commercial steel bars hold at 1.65c, base, Cleveland, with extras for forging quality as recently reported now in effect.

Chicago—Bar specifications from the automotive industry have been maintained at a better rate than anticipated but lack of improvement in buying by other consumers leaves the market dull. Farm implement manufacturers are more encouraged over the outlook but continue slow buyers. Railroads also are taking only small lots. The market generally is steady at 1.70c for soft steel bars, with rail steel 1.50c and bar iron 1.65c.

Tin Plate Mills Seek To Drop Quantity Preferences

Tin Plate Prices, Page 43

New York—While $4.75, per base box of 100 pounds, Pittsburgh, continues official, it is largely nominal, with current quotations irregular. Stock offerings continue to exert an unsettling influence. It is believed that the next announcement of tin plate, which may come for fourth quarter, will see a determined effort to eliminate the present quantity differentials which have long been in effect. Such action, it is pointed out, would be in line with effort now being made to establish a flat price on certain majojr finished products.

Pittsburgh—Expected improvement in tin plate operations has not developed and at present the average is a shade less than 40 per cent. Some producers are stocking plate, as the canners are issuing only rush specification. The price of $4.75 per base box is officially unchanged.

Youngstown, O.—Tin plate requirements continue to be placed with valley mills in about the same measure as in the past half year. Valley tin mills operate at 45 to 50 per cent. Canmakers are preparing for a heavy pack.

Cold-Finished Makes Low In July; Price Is Firm

Cold Finished Prices, Page 43

Pittsburgh—July was the lowest month of 1932 in shipments and new business in cold-finished steel bars. However, this is tempered in part when it is considered that while it is the low point it did not fall to the levels anticipated a month or two ago. There is practically no business in the market at present, especially from the Detroit area. The base price of 1.70c for 5-ton lots or more to one destination at a time represents the minimum.

Plates

Stronger Sentiment in Market —Some Tank Jobs Placed— 2500-Ton Pipe Line Expected

PLATE PRICES, PAGE 43

Chicago—Plate demand lacks support from practically all important consumers and recent activity approximates the lowest level of the year. Railroads are especially quiet in purchases and water and oil tank work is slow. The market is untested at 1.70c, Chicago.

Boston—Plates are more active, with the price steady at 1.70c, Coatesville, Pa., having withstood severe pressure. Releases of sizable shipments for shipbuilding, pipe, and for a new oil-burning unit being built at Pittsfield, Mass., are encouraging. The Holyoke, Mass., pipe fabricator has booked several hundred tons for Connecticut and has a substantial unshipped backlog. The 2500-ton pipe line for Boston is expected out shortly.

Philadelphia—A better feeling prevails in the local plate market, based to some extent on prospects for improved railroad buying this fall. Except for 25 locomotives, contemplated by two eastern railroads, there is little tangible evidence of this. No immediate action appears likely on the locomotives. The usual market on plates in carlots is 1.70c, Coatesville, Pa., although subject to some irregularity. Lukens Steel Co. has booked an order for large steel plates for Panama, opening of July 20, at $3146.35, delivered.

Pittsburgh—The market continues firm at 1.60c, but orders are not im-

proving. Inquiry is slightly better. It is possible that a barge line project may be closed this week.

Cleveland—The number of small plate sales has increased considerably, improving tonnage. The first three weeks of July for some makers registered the low point of the year, but the last week lifted the total for the month over the June level. A feeling that the turning point in the market is near has been helped also by the fact some users have increased the size of orders. Carloads are reported by some makers as more frequent. A boilermaker whose business picked up recently obtained protection at the current price for the remainder of the third quarter, and then sought to cover at this level for the fourth quarter, but the mill refused. The going market is 1.60c, base, Pittsburgh.

Contracts Placed

750 tons, gas holders, Southern Counties Gas Co., Whittier, Calif., to Chicago Bridge & Iron Works, Chicago.

Unstated tonnage, tank and tower, Leeds, Mass., to Pittsburgh-Des Moines Steel Co., Pittsburgh.

Unstated tonnage, 6,000,000-gallon tank, Milwaukee, to A. O. Smith Corp., Milwaukee.

Contracts Pending

990 tons, protectors for breakwater, Santa Monica, Calif.; bids Aug. 5.

300 tons, 740,000-gallon tank for fuel oil, Mare Island, Calif.; bids Aug. 10.

100 tons, boiler, Queens of Angels hospital, Los Angeles; bids being taken.

Unstated tonnage, 200,000-gallon tank and tower United States department of justice reformatory, El Reno, Okla.; Chicago Bridge & Iron Works, Chicago, low, $9940, bids July 25.

Forecast Third Quarter Carloadings Off 21%

Carloadings in the third quarter will total 4,629,400, a decrease of 21.1 per cent from the 5,868,286 of the third quarter of 1931, states the American Railway association in consolidating the forecasts of all regional shippers advisory boards.

It is estimated that 195,569 cars of iron and steel will be loaded, 18.3 per cent below the third quarter of 1931. For coal and coke, the estimate for the third quarter is 1,323,319 cars, 20 per cent below a year ago.

National Makes Bullet Cores

National Acme Co., Cleveland, will supply 1,000,000 steel bullet cores, 0.50 caliber, for the Frankford (Philadelphia) arsenal for $5.91 per 1000.

Railroads

Street Railway Car Order Helps Builder—Pittsburgh Mill Rolls Pennsylvania Rails

TRACK MATERIAL PRICES, PAGE 43

New York—Preliminary estimates indicate the placing of less than 30 domestic freight cars in July. Of this number 25 will be built by the Kansas City Southern, as noted in a previous issue. This compares with no orders in June. While the immediate outlook is not encouraging to car builders, indications point to increase in demand for rolling stock this fall, particularly after the carriers have come in receipt of some revenue from the grain movement. A total of 25 locomotives is being considered by two eastern railroads with some interest manifested in the Middle West. An eastern railroad is figuring on 3000 tons of rails. Brooklyn & Queens Transit Corp. has closed on its wheel requirements.

Philadelphia—J. G. Brill Co. has booked a $600,000 order for 40 electric street cars and trolley buses from Indianapolis Railways Inc.

Pittsburgh—Carnegie Steel Co.'s Edgar Thomson mill is resuming today with several open hearths and is rolling a share of the Pennsylvania railroad's recent release of standard open-hearth rails. This amounts to about 7000 tons and in addition there is grouped with this order about 4000 tons for other customers. As it is near the close of the track-laying season and there have been no other substantial releases the railroad steel market is dull. A few fastening orders continue to be placed from time to time and deliveries can be effected quickly on tie plates and spikes. Prices are unchanged with tie plates $37, spikes 2.60c, and high light rails nominal at $32 a ton.

Chicago—Steel mills and equipment builders derive scant satisfaction from recent railroad purchases. New rail orders and releases are lacking and activity in track material is steady but quiet. Increases in repair work by carriers recently have been confined principally to equipment requiring but little steel. Freight car builders are slight prospects for an early increase in freight car purchases although report is current that an extensive modernization campaign will be instituted early next year. Some hope is entertained that federal financing may develop equipment purchases.

Car Orders Placed

Indianapolis Railways Inc., 40 electric street cars and trolley buses, to J. G. Brill Co., Philadelphia.

Nut, Bolt Outlook Better; Large Rivet Needs Loom

Bolts, Nuts, Rivets Prices, Page 43

Pittsburgh—Present bolt specifications run almost entirely to small size and there have been no recent price developments at 75 off list. Large rivets are quiet at 2.25c base.

New York—Bolts and nuts continue steady at 75 off, with weakness confined to rivets, which are soft at 2.15c to 2.25c, Pittsburgh. Approximately 35 tons of bolts are being figured for the Cunard pier, through Frederick Snare, general contractor.

Philadelphia — Orders are being distributed for about 350 tons of galvanized hook bolts, turn buckles and anchor rods by the Pennsylvania highway commission for guard rails. About 200 tons of castings also are being placed for this work. Milton Mfg. Co., Milton, Pa., has booked 3000 2¾-inch hot pressed hexagon nuts for hydraulic equipment being manufactured by Hardie-Tynes Mfg. Co., Birmingham, Ala., for the Hoover dam.

Cleveland—Rivet manufacturers are figuring on about 500 tons of special rivets for the outflow pipe of the Hoover dam project, for which 52,000 to 60,000 tons of plates were placed recently. The pipe sections are to be welded but the sections may be joined by rivets, though a definite decision has not been reached. The rivets being considered are of special analysis steel, finished by centerless grinding to a tolerance of 0.001-inch, to be pressed into holes 0.001-inch in diameter less than the diameter of the rivets. The general market for rivets is brighter. An order for 20 tons of small rivets for shipment to the west coast was booked here recently.

Chicago—A slight betterment in specifications from jobbers for bolts, nuts and rivets and generally improved tone among consumers gives a better outlook. A few other buyers are ordering in slightly larger lots and although business has shown insufficient change to bring volume for the month to an improvement over June, prospects are regarded as more favorable. Nuts and bolts continue 75 off, with structural rivets 2.35c, Chicago.

Structural Shapes

Awards Heavier — Week's Total Goes Well Above Average for Year—5000 Tons Placed for Mississippi River Work — Private Projects Still Are Subnormal

STRUCTURAL SHAPE PRICES, PAGE 43

New York—Structural awards are heavier, topped by 5500 tons for the Newark, N. J., postoffice. Fresh inquiry is light, but includes numerous small government jobs. More city work is active, bids going in on projects requiring close to 3000 tons. Private requirements are light.

Boston—Close to 800 tons of structural shapes have or are about to be placed in New England, exclusive of about 400 tons for state bridges at Wellesley and Newton, Mass. The state program is nearing an end for the season, with 900 tons up for bridges for the Providence-Boston route.

Philadelphia—While recent awards have been light, the appearance of specifications for the new Thirtieth street postoffice, here, on which bids are to be opened Aug. 26, has improved sentiment. Shapes are 1.70c, nearest mill, with fabricated prices manifesting more strength. Possibly 3000 tons will be required for work to be undertaken by the Pennsylvania railroad in Newark, N. J., shortly.

Pittsburgh—A rise in the volume of inquiry for structural steel is coincident with improved sentiment in industry. Government engineers last week closed on over 5000 tons of sheet piling for installation at three Mississippi river points with the Jones & Laughlin Steel Corp. Base prices of 1.60c for structural steel, and 1.90c, Pittsburgh, for steel sheet piling are firm.

Cleveland—Award of 500 tons here for the West Moreland-Indiana counties, Pennsylvania, highway bridge; and 326 tons for the Tompkins county, Ithaca, N. Y., courthouse, features the market. Bids are in on three Ohio state bridges, requiring approximately 2000 tons.

Chicago—Public work continues to appear in fairly steady volume. Private projects are few and require only small lots. Among the larger lots pending are 3200 tons for the Bismark, N. Dak., capitol building, and 1000 tons for Missouri state bridges.

Contracts Placed

5500 tons, postoffice, Newark, N. J., to McClintic-Marshall Corp., Bethlehem, Pa.; N. P. Severin Co., Chicago, general contractor.

5100 tons, steel sheet piling, three government installations at Carruthersville, Mo., Cairo, Ill., and Helena, Ark., to Jones & Laughlin Steel Corp., Pittsburgh

2500 tons, armory, Buffalo, to McClintic-Marshall Corp., Buffalo; J. W. Cowper Co., Buffalo, contractor.

1700 tons, bridge, Shark river, Belmar-Avon, New Jersey, to American Bridge Co., Pittsburgh, through S. S. Thompson & Co., contractor.

1516 tons, Medical Arts building, Duluth, to American Bridge Co., Pittsburgh.

1420 tons, viaduct, Waverly yards, Pennsylvania railroad, Newark, N. J., to American Bridge Co., Pittsburgh, through E. H. Latham Co., Columbus, O., contractor.

580 tons, subway, Milwaukee, for Chicago, Milwaukee, St. Paul & Pacific railroad to Milwaukee Bridge Co., Milwaukee.

540 tons, pathological building, city hospital, Boston, to New England Structural Co., Boston; Matthew Cummings Co., Boston, contractor.

500 tons, highway bridge, Oklahoma, to Pittsburgh-Des Moines Steel Co., Pittsburgh.

500 tons, bridge, West Moreland-Indiana counties, Pennsylvania, to McClintic-Marshall Corp., Cleveland, through Industrial Construction Co., Cleveland.

480 tons, building, National Institute of Health, Washington, to unstated fabricator.

352 tons, bridge, Jasper county, Missouri, to Missouri Valley Bridge & Iron Co., Leavenworth, Kans.; erroneously reported previously as awarded to another fabricator.

326 tons, Tompkins county courthouse, Ithaca, N. Y., to McClintic-Marshall Corp., Cleveland.

320 tons, state bridge, Montgomery-Chester counties, Pennsylvania, to McClintic-Marshall Corp., Bethlehem, Pa.

300 tons, highway bridges, Wisconsin, to Lakeside Bridge & Steel Co. and Milwaukee Bridge Co., Milwaukee.

285 tons, Harlan school, Wilmington, Del., to Morris Wheeler & Co.; previously reported placed with another fabricator.

260 tons, William E. Dever crib, Chicago, to Midland Structural Steel Co., Cicero, Ill.

250 tons, building for R. B. Davis & Co., Hoboken, N. J., to H. R. Goeller Inc., Newark, N. J.

250 tons, Y.M.C.A. building, Brooklyn, N. Y., to George A. Just Co., Long Island City, N. Y.

250 tons, highway bridge, Collins, N. Y., to McClintic-Marshall Corp., Bethlehem, Pa.

240 tons, state bridge, Skykomish river, Washington, to Pacific Car & Foundry Co., Seattle; general contract, L. Romano Engineering Co., Seattle.

230 tons, state bridge, New York, to Lackawanna Steel Construction Corp., Buffalo, through Lane Construction Co., Meriden, Conn., contractor.

212 tons, central grade school, Kings Ferry, N. Y., to Dan B. Sayre, Syracuse, N. Y.

160 tons, warehouse, Standard Brands Inc., Peekskill, N. Y., to McClintic-Marshall Corp., Bethlehem, Pa.

160 tons, intercoastal canal bridge, Beaumont, Tex., to Petroleum Iron Works, Beaumont, Tex.; Christy-Dolph Const. Co., Beaumont, contractors.

155 tons, postoffice, Salem, Mass., to Lackawanna Steel Construction Corp., Buffalo.

150 tons, church, Fleetwood-Mt. Vernon, New York, to American Bridge Co., Pittsburgh, through Lippe Contracting Co.

150 tons, highway bridge, Trempealeau county, Wisconsin, to Lakeside Bridge & Steel Co., Milwaukee.

150 tons, basement, Cook county, Ill., hospital nurses' home, to Hansell-Elcock Co., Chicago.

150 tons, dormitory alterations, Yale university, New Haven, Conn., to Lehigh Structural Steel Co., Allentown, Pa.; Marc Eidltz & Son, New York, contractor.

148 tons, pier No. 2, Fort Mason, San Francisco, to Judson-Pacific Co., San Francisco.

140 tons, bridge, Richland county, Wisconsin, to Lakeside Bridge & Steel Co., Milwaukee.

135 tons, abbatoir, Albany, New York, to Shippers' Carline Corp., Milton, Pa.

130 tons, bridge, Santa Ana river, San Bernardino, Calif., to Emsco Steel Products Co., Los Angeles.

130 tons, grain storage building, Chicago, to Gage Structural Steel Co., Chicago.

125 tons, commercial building, Farrand Improvement Co., Cleveland, to Fort Pitt Bridge Works, Cleveland, through H. G. Slatmyer & Son Construction Co., Cleveland.

125 tons, two projects in Philadelphia district, to Morris Wheeler & Co., Philadelphia.

125 tons, state bridge, Oxford, Me., to Lackawanna Steel Construction Corp., Buffalo.

100 tons, shapes and bars, state bridge, Prince George county, Maryland, to American Bridge Co., Pittsburgh, and Maryland Steel Products Co., Baltimore; Caton Construction Co., Baltimore, contractor.

100 tons, transit shed, Milwaukee harbor board, to Lakeside Bridge & Steel Co., Milwaukee; originally reported let to Wm. F. Eichfeld & Son Co., Milwaukee.

Awards Compared

	Tons
Awards week ended July 30	**24,957**
Awards, week ended July 23	**5,373**
Awards, week ended July 16	**14,451**
Awards, this week in 1931	**37,732**
Av. weekly awards, 1931	**34,236**
Av. weekly awards, 1932	**15,642**
Av. weekly awards, June	**20,034**
Awards, to date, 1931	**1,149,133**
Awards to date, 1932	**484,860**

Contracts Pending

14,000 to 17,000 tons, postoffice, Thirtieth street, Philadelphia; bids Aug. 26

on general contract.
3200 tons, state capitol building, Bismarck, N. Dak.; Lundoff-Bicknell Co., Chicago, awarded general contract.
3000 tons, highway bridge, Bridgeport, Okla.
2000 tons, three incinerator buildings, New York city.
1880 tons, state bridges, Ohio highway department; 680 tons, Butler county; 700 tons, Hamilton county; 500 tons, Defiance county.
1500 to 2000 tons, building, American Philosophical society, Philadelphia; specifications in about two months; Paul P. Cret, architect, Philadelphia.
1000 tons, hospital addition, University of California, San Francisco.
1000 tons, tubercular hospital, Oneanta, N. Y.
1000 tons, bridges, Missouri.
900 tons, two highway bridges, Massachusetts.
900 tons, state bridges, Dedham and Westwood, Mass., section on Boston-Providence highway.
750 tons, Missouri river bridge, Garrison, N. Dak.
600 tons, highway bridges, New York; bids Aug. 9.
600 tons, postoffice, Reno, Nev., Landis & Young, Georgetown, Tex., low.
600 tons, building, Chrysler Corp., at Century of Progress exposition, Chicago.
575 tons, H columns for breakwater, Santa Monica, Calif.; bids Aug. 5.
500 tons, state bridge, Cortland county, New York, bids in.
500 tons, hospital, Thiels, N. Y.; bids Aug. 3.
400 tons, approximately, crane runway for Pennsylvania railroad, Enola, Pa.; specifications in about 10 days.
400 tons, state hospital building, Beacon, N. Y.
325 tons, county building, Bay City, Mich.
300 tons, state bridge, Fairview, Md.
300 tons, postoffice, Dubuque, Iowa, Ideal Construction Co., Gary, Ind., low.
290 tons, steel sheet piling, Hoover dam; bids received.
250 tons, building, General Aniline Works, Rensselaer, N. Y.
200 tons, Newton-Hamilton bridge, Juniata river, Mifflin county, Pennsylvania; A. G. Andrew Engineering Co., Tyrone, Pa., contractor.
200 tons, postoffice, Marysville, Calif.; bids Aug. 30.
200 tons, warehouse, Jordan & Marsh Co., Boston; bids in.
150 tons, shapes and plates, 25-ton locomotive crane, Mare Island, Calif.; bids opened.
125 tons, postoffice, Dansville, N. Y., general contract to Rosen & Fischel, Chicago.
125 tons, state bridge, Erie county, New York.
110 tons, shapes and bars, postoffice, Painesville, O., Carl Westberg & Co., Chicago, low.
110 tons, substructure, Halsted street bridge, Chicago; bids Aug. 1.
110 tons, postoffice, Marshfield, Oreg.; McCarthy Bros. Construction Co., St. Louis, low.
100 tons, shapes and bars, postoffice addition, Port Huron, Mich.; North-Moller Co., Jackson, Mich., low.
100 tons, postoffice, Wheaton, Ill.; Schmidt Bros. Co., Chicago, low.
100 tons, postoffice, Freeport, N. Y.; J. J. Hearn Construction Co., New York, low.
Unstated tonnage, bridge, watershops, Armory, Springfield, Mass., project authorized.

Concrete Bars

Highway and Bridge Requirements Still Lead—Week's Tonnage Off Slightly—More Calls for Small Lots from Warehouses — Prices Exhibit Steady Tendency

REINFORCING BAR PRICES, PAGE 43

New York—The market for reinforcing bars is quiet, demand being largely for work in New Jersey, several hundred tons there being due to be closed this week. About 250 tons will be required for the west side elevated highway section foundations. Prices are steady.

Philadelphia—While 1.75c, Pittsburgh, appears to be the nominal asking price on bars in cut lengths, this figure continues to be shaded in some instances. For bridge and road work in Bucks county, Pennsylvania, 475 tons have been placed.

Boston — A large tonnage of reinforcing bars will be required for the Huntington avenue subway spur, Boston, now in the engineering planning stage. Only part of this subway work is likely to go ahead this year.

Pittsburgh—Small lots of reinforcing steel bars constitute present demand. Nearly all are moving into highway bridges in this and nearby states. Reinforcing bars in mill stock lengths are quoted 1.60c, with cut lengths 1.75c.

Cleveland—Demand for concrete bars from warehouse picked up considerably in the last week of July. State road work is fairly active.

Chicago—A moderate increase in inquiries for private construction gives a slightly better tone to the market. Such work is confined almost entirely to small lots, while orders for public work are fairly steady.

Contracts Placed

585 tons, sewer, Brooklyn, N. Y., to Igoe Bros., Newark, N. J.

Awards Compared

	Tons
Awards, week ended July 30	**3,015**
Awards, week ended July 23	**5,989**
Awards, week ended July 16	**2,549**
Awards, this week, 1931	**7,167**
Av. weekly awards, 1931	**6,808**
Av. weekly awards, 1932	**4,208**
Av. weekly awards, June	**4,691**
Awards, to date, 1931	**223,571**
Awards, to date, 1932	**130,443**

475 tons, comprising 325 tons for bridge and 150 tons for road work, Bucks county, Pennsylvania, through Union Paving Co., contractor, to Kalman Steel Corp., Bethlehem, Pa.
330 tons, grade crossing, Del Mar, Calif., over Santa Fe tracks, to Blue Diamond Co., Los Angeles.
300 tons, highway, Monmouth Junction road—Bodine Corner, New Jersey, to Kalman Steel Co., Bethlehem, Pa., through Utility Construction Co.
275 tons, highway widening, Trenton-Monmouth Junction road, New Jersey, to Igoe Bros., Newark, N. J., through Charles D. Prosser.
200 tons, Illinois road work, to Calumet Steel Co., Chicago.
200 tons, factory, Hoboken, N. J., to unstated interest.
135 tons, intercoastal canal bridge, Beaumont, Tex., to Jefferson Steel Co., Beaumont. Christy-Dolph Construction Co., Beaumont, contractor.
120 tons, Kress store, Hollywood, Calif., to Soule Steel Co., San Francisco.
120 tons, roadway, Mt. Washington, Pittsburgh, to Truscon Steel Co., Youngstown, O., through John F. Kuntz Co., contractor.
100 tons, packing house, Brooklyn, N. Y., to Jones & Laughlin Steel Corp., Pittsburgh.
100 tons, postoffice, Paterson, N. J., to Rawlins Steel Co., New York.
75 tons, road work in Chester and Montgomery counties, Pennsylvania, awarded through George I. Thompson, contractor, Clearfield, Pa., to Truscon Steel Co., Youngstown, O.

Contracts Pending

1237 tons, breakwater, Santa Monica, Calif.; bids Aug. 5.
425 tons, state buildings, Thiells, N. Y.
300 tons, armory, Buffalo; John W. Cowper Co., Buffalo, general contractor.
300 tons, sewer, Yonkers, N. Y.
225 tons, section, west side elevated highway, New York.
150 tons, hospital, Beacon, N. Y.
100 tons, school, Hawthorne, N. Y.
Unstated, but sizable tonnage, Thirtieth street postoffice, Philadelphia; general contractors' bids opened Aug. 26.

Colonial Steel Co. Resumes

Pittsburgh—Colonial Steel Co., Colona, Pa., which had been closed down since May 1, resumed operations July 26 on its 9 and 16-inch bar mills. This resumption was made necessary to replenish bar stock and also to fulfill some contract orders for copper clad steels. The company's stock of high speed and carbon steel sheets will also have to be replenished.

Pipe

Substantial Awards Wait on Aid From Reconstruction Finance Corp.—Line Projects Slow

PIPE PRICES, PAGE 56

Chicago—Considerable work requiring cast pipe is in prospect in this and nearby districts, consummation of which depends on financial aid from the Reconstruction Finance Corp. Some orders already have been placed pending favorable action by that body. Pending work includes a sewage disposal plant for Geneva, Ill., and Duluth. Recent orders have been light and inquiry also is slow. Prices are unchanged.

Boston—Buying of tubular products is light. Several of the larger cities in New England have bought little cast pipe and the curtailed tonnage up to this time is largely due to the drying up of demand from these points. Two carloads of steel and one of wrought pipe for the veterans' home, Togus, Me., went to Bethlehem Steel Co. and Reading Iron Co., respectively, through the D. C. Engineering Co. Inc.

New York—Bids are to be opened July 31 on a substantial tonnage of caisson pipe for a west-side highway section in Manhattan borough. Cast pipe lettings for the week amount to several hundred tons. Inquiry is featured by close to 2000 tons for Baltimore and Washington. Prices are firmer, with $27 to $28, foundry, frequent.

Philadelphia—Approximately 350 tons of 5 and 6-inch steel pipe is required by the Gulf Refining Co. for a 50,000-foot installation between Gloucester and Collinswood, N. J. Reports of a contemplated purchase of new pipe for an 80-mile oil line in Texas for the Atlantic Pipe Line Co., subsidiary of the Atlantic Refining Co., this city, are denied here.

Buffalo—Demand for pipe has broadened during the past ten days. Carload sales have shown a marked pickup, and smaller lots are moving much more frequently.

Pittsburgh—Producers of oil country goods foresee a suspension in demand next month from the East Texas oil fields. Standard pipe is moving slower than it was last month. Line pipe jobs are not active. Pipe mill operations are around 12 per cent, seamless output leading.

Birmingham, Ala.—Cast pipe production during the last two weeks of July was somewhat better than in the first two weeks. W. D. Moore, president, American Cast Iron Pipe Co., is cheerful regarding the outlook. Federal financing of projects in various sections of the country is anticipated.

Youngstown, O.—An increase is noted in demand for merchant pipe, mainly for building purposes. Youngstown Sheet & Tube Co. has resumed operation of one of its two seamless tube mills, idle since the middle of June.

Cast Pipe Placed

200 tons, sewer system, Hamilton Field, Calif., to unnamed interest.
125 tons, 16-inch, Greenwich, Conn., to United States Pipe & Foundry Co., Burlington, N. J.
120 tons, Rhinebeck, N. Y., to Donaldson Iron Co., Emaus, Pa.
110 tons, Wallkill, N. Y., to Donaldson Iron Co., Emaus, Pa.
Unstated tonnage, one carload 6-inch class C pipe for Appleton, Wis., to Lynchburg Foundry Co., Lynchburg, Va., at 53 cents per foot.

Steel Pipe Placed

100 tons, steel and wrought pipe, veterans' home, Togus, Me., to Bethlehem Steel Co. and Reading Iron Co.
Unstated tonnage, 41,000 feet, 2-inch and under, galvanized, Panama, to C. J. Rainear & Co., Philadelphia, $1130.80, delivered. Bids July 20.

Cast Pipe Pending

1600 tons, 8-inch, Freeport, N. Y.; alternates on cement or tile pipe, bids Aug. 1.
1175 tons, 4 to 20-inch, district commissioners, Washington; bids Aug. 11.
600 tons, 18 to 28-inch, centrifugal, Baltimore; bids in.
208 tons, cast iron fittings, Washington; bids Aug. 5.
100 tons, 8-inch, Hammonton, N. J.; bids in.
Unstated tonnage, sewage disposal plant, Geneva, Ill.; bids Aug. 22.
Unstated tonnage, sewage disposal plant, Duluth.

Steel Pipe Pending

125 tons, 24-inch seamless, repairs, Tenth street bridge, Pittsburgh.
110 tons, 60 steel, 50 wrought, veterans' hospital, Roseburg, Oreg.; Redmond Heating Co., Louisville, Ky., contractor.

Better Wire Buying Is Seen for Autumn

Wire Prices, Page 43

Chicago—July marked the low level in wire shipments and incoming business. Favorable crops are expected to provide stimulus for better demand for wire products over several months. Manufacturers' wire specifications are dull and unchanged. Prices are steady at $2 in carloads for wire nails and 2.25c for plain wire.

Macwhyte Co., Kenosha, Wis., has been awarded 750 tons of steel strand for the army engineer, Vicksburg, Miss., bidding $34,057.50, f.o.b. Kenosha, or $38,938.35, delivered.

Worcester, Mass.—Wire demand is spotty and buying shows little change. Inquiry is larely routine, although some good business, long dormant, is still kept hopefully on the prospect list. Prices are firm and unchanged with plain bright wire 2.30c and spring wire 3.30c. Mill operations are irregular and light.

Philadelphia—Demand for nails continues depressed by low building operations, but with the market unchanged at $1.95, Pitsburgh. Plain bright wire also is quiet and unchanged.

Pittsburgh—Price firmness and a gaining volume of inquiry feature the wire market, occasioned by completion of vacations and inventories among many jobbers and users of manufacturers' wire. Prices are holding, with $1.95 minimum on nails and 2.20c firm on plain wire. One of the large wire mills in this district is resuming today.

Cleveland—Demand for wire is holding up fairly well, though a considerable proportion of shipments is restricted to truck lots. Movement of fencing material to jobbers is noted by some makers as exceptionally good for this time of the year. Prices are steady.

Memphis, Tenn.—John A. Roebling's Sons Co., Trenton, N. J., has booked 15,000 pounds, ¼-inch noncorrosive 4-wire strand for the army engineer here at 9.5c, f.o.b. mill.

Ore Requirements Revised Upward by Some Users

Iron Ore Prices, Page 50

Cleveland—Several consumers of Lake Superior iron ore have increased specifications for shipments to them this year. This is the first reversal in the trend noted so far this year; heretofore consumers have been revising and cutting down their estimates. The increase in tonnage is not large, but the tendency is considered significant. Lake shipments of iron ore for July will approximate 610,000 tons, compared with 235,000 tons in June, and 4,956,000 tons in July, 1931. The total movement for the present season to Aug. 1 is about 1,000,000 tons, shipments in the last few days of July being estimated.

Strip

Sentiment Better but Orders Are Slow—Eastern Inquiry Has Some Unusual Market Features

STRIP PRICES, PAGE 43

Pittsburgh—The strip market still is dull and small orders make up most of present rolling schedule. The narrower widths are in slightly better demand than the wider sizes. Cold-rolled strip holds at 2.00c, Pittsburgh, and the few carloads of hot-rolled that were closed on last week were billed at 1.45c, base.

New York—Improved sentiment in strip has not been reflected in improved demand. Specifications continue small, with the market holding more or less nominally at 1.45c, Pittsburgh, on hot strip in car lots and 2.00c, Pittsburgh, on cold strip.

Philadelphia—A tentative inquiry is out here for approximately 2500 tons of hot strip, including a portion of sheets. This is the largest inquiry in this market in many weeks. Another hot strip inquiry calls for 350 tons. The placing of the larger tonnage in this district is believed to be contingent upon the success of a metal worker in figuring a pending contract. As certain sizes fall just outside the range of hot strip, an interesting test is likely to ensue in connection with prices on the sheet sizes. Hot strip generally continues at 1.45c, Pittsburgh, in carlots, and cold strip at 2.00c, Pittsburgh.

Cleveland—Specifications for hot and cold-rolled strip have continued to shrink, reaching a new low point in the last week of July. Mills especially note a decline in automotive shipments. Some new Chevrolet models scheduled for September are expected to develop strip orders in August. Makers have had little inquiry recently, but prices are fairly well established at 1.45c, base, Pittsburgh, for hot-rolled strip, to large consumers and 2.00c, base, Cleveland, for cold-rolled.

Chicago—Strip continues to move slowly, affected adversely by declining requirements of some automotive interests. July shipments showed a moderate decrease from June and hopes for better activity in August are based principally upon the outlook among miscellaneous consumers. Mill operations continue around 15 per cent. Prices are tested on only small lots, usually being 1.55c to 1.60c, Chicago, for hot strip and 2.00c, Pitsburgh-Cleveland, for cold-rolled strip.

Speers, Kerr, Steel Inc., Puget Sound building, Tacoma, Wash., has changed its name to Hall, Kerr, Steel Inc.

Steel Rate Holds at 16-17; Trend Slightly Stronger

Pittsburgh—Steel production was at 15 per cent last week, up one point. This week another one point gain to 16 per cent will in all probability be effected as the local rail mill will start up open hearths in company with the Donora, Pa., works of the American Steel & Wire Co., both of which began to operate July 28. Last week the aggregate operations of a leading producer here was 11 per cent but independent mills raised the average for the district.

Philadelphia—Eastern steelmaking operations are fractionally reduced to 12 to 14 per cent.

Buffalo—Operations in the Buffalo district will drop five points this week, from 19 to 14 per cent, due to staggered operations. Schedules are for five open hearths to produce ingots this week, compared with eight last week.

Youngstown, O.—Steel plant operations in the week ended July 30 averaged 13 per cent, down four points. But resumption at one and perhaps two open-hearth plants this week will lift the average several points. Both Republic and Carnegie ingot capacity at Youngstown has been idle. Eighteen of 83 open hearths are melting. One blast furnace will resume shortly. Youngstown Sheet & Tube Co. has resumed on a seamless pipe mill.

Cleveland—Steel ingot production here in the past week held at 18 per cent, for the third consecutive week. This also is the rate now scheduled for the current week. American Steel & Wire Co. has not decided when it will resume ingot production. Corrigan, McKinney Steel Co. will continue with four units active this week; Otis Steel Co. two.

Chicago—Ingot production was slightly lower during the past week, averaging around 14 per cent, with no indications of a marked change during the coming week. Blast furnace operations continue at eight active steelworks stacks out of 36.

Duluth—Three open-hearth steel furnaces of the Minnesota Steel Co., now being operated by American Steel & Wire Co., were lighted Aug. 1, adding 200 men to the payroll. This is the first production of ingots at this plant since March 15.

Birmingham, Ala.—Steelmaking operations have been maintained recently at 21 per cent. Gulf States Steel Co. has two open hearths on at Gadsden and Tennessee Coal, Iron & Railroad Co. four at Fairfield.

Operations, week ended July 30	**16.5**
Operations, week ended July 23	**16.5**
Operations, week ended July 16	**15.5**
Operations, one year ago	**32**
High for 1932, Feb. 6	**28.5**
Low for 1932—July 9	**12**

J. & L. Net Loss Lower

(*Concluded from Page* 14)

cent cumulative preferred stock. Last quarter $1 a share was declared.

□ □ □

Inland Deficit Is Smaller

Inland Steel Co., Chicago, reports net earnings from operations after deducting administration expense and all charges for repairs and maintenance, in the second quarter, were $495,406, but the net loss for the quarter after interest on bonds, depreciation and depletion was $619,982. In the first quarter the net loss was $820,541. The common dividend was passed again.

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Wheeling Showing Better

Wheeling Steel Corp., Wheeling, W. Va., reports net loss of $588,204 for the second quarter against loss of $628,623 for the first quarter and $686,323 for the second quarter of 1932.

Operating profit in the second 1932 quarter was $2,047,327. Idle plant and maintenance charges totaled $1,452,616 and depreciation, depletion and bond interest totaled $1,271,077.

□ □ □

Otis Behind $459,000

Otis Steel Co., Cleveland, encountered net loss of $459,009 in the second quarter, before depreciation, federal taxes and interest, compared with $701,162 in the first quarter of 1932. In the second quarter of 1931, net loss after taxes, interest and depreciation was $269,784.

Raw Material Prices

Delivered pig iron prices subject to 10 per cent freight surcharge, maximum 13.44c gross ton, from Jan. 4

Pig Iron

Per Gross Ton

FOUNDRY, NO. 2

Chicago, furnace	$15.50
Pittsburgh, dist. fur.	15.00
Pittsburgh, delivered	15.63 to 16.13
Valley furnace	14.50 to 15.00
Cleveland fur., local del.	15.50
Philadelphia, delivered	14.26
Virginia furnace	17.50
Granite City, Ill., fur.	16.50 to 17.50
Buffalo, fur., local del.	16.00
Buff., all-rail, Boston	18.91 to 19.91
Buff., all-rail, Brooklyn	18.40 to 18.90
Buff., all-rail, Newark	16.78 to 17.28
Ala., Bir. fur., local del.	11.00
Ala., Nor. del., Bir. base	10.00
Alabama, del. Chicago	16.01
Alabama, del. St. L.	14.42
Alabama, del. Cincinnati	13.82
Ala., Phila., dock del.	15.00 to 15.25
Ala., Balt., dock del.	15.00
Alabama, New York dock	15.50
Ala., Boston dock del.	15.75 to 16.75
Tenn., Bir. base, local del.	13.00
Tennessee, del. Cinn.	13.82
Montreal, delivered	23.00 to 23.50
Toronto, delivered	22.10

FOUNDRY, NO. 2X

Buffalo, fur., local del.	16.50
Buff., all-rail, Brooklyn	18.90 to 19.40
Buffalo, all-rail, Newark	17.28 to 17.78
Buff., all-rail, Boston	19.91 to 20.91
Virginia furnace	18.00
Eastern, del. Phila.	14.76

FOUNDRY, NO. 1X

Buffalo fur., local del.	17.50
Eastern, del. Phila.	15.26

MALLEABLE

Valley furnace	14.50 to 15.00
Cleveland fur., local del.	15.50
Pittsburgh dis. fur.	15.00
Pittsburgh, delivered	15.63 to 16.13
Chicago, furnace	15.50
Buffalo fur., local del.	16.50
Eastern Penna., delivered	16.13 to 19.41
Granite City, Ill., fur.	16.50 to 17.50
Montreal, delivered	24.00
Toronto, delivered	22.60

BASIC

Pittsburgh, district fur.	14.50 to 15.00
Pittsburgh, delivered	15.13 to 16.13
Eastern Penn., del.	14.00
Buffalo fur., local del.	15.50 to 16.00
Montreal, delivered	23.50
Valley, furnace	14.00

BESSEMER

Valley furnace	14.50 to 15.00
Pittsburgh, furnace	15.00
Pittsburgh, delivered	15.63 to 16.13

LOW PHOS.

Valley fur., standard	25.00
Philadelphia, standard	23.76 to 26.79
Copper-bear., E. Pa. fur.	21.50 to 23.00

GRAY FORGE

Valley furnace	14.00
Pittsburgh district fur.	15.00
Pittsburgh, delivered	15.63 to 16.13

CHARCOAL

Lake Superior, del. Chicago	23.04

SILVERY

Jackson County, O., fur. in per cents: 6—$18; 7—$18.50; 8—$18.75; 9—$19; 10—$19.50; 11—$20; 12—$20.50; 13—$21.50; 14—$22.50; 15—$23; 16—$24; 17—$25.50.

Pittsburgh and Buffalo furnace: 7 to 10—$19.50; 15—$23 to $24.

BESSEMER FERROSILICON

Jackson County, O., fur., in per cents: 10—$20.50; 11—$21; 12—$21.50; 13—$22.50; 14—$23.50; 15—$24; 16—$25; 17—$26.50.

Coke

Prices Per Net Ton

Beehive Ovens

Connellsville furnace	$2.00 to 2.15
Connellsville foundry	3.00 to 4.25
New River foundry	6.00
Wise county foundry	4.25 to 5.00
Wise county furnace	3.50 to 4.25

By-Product Foundry

Newark, N. J., del.	8.21 to 8.81
Chicago, ovens, outside del.	7.00
Chicago, del.	7.75
New England, del.	10.00
St. Louis, del.	7.75
Birmingham, ovens	4.50
Indianapolis, del.	8.25
Ashland, Ky., ovens, Connell., basis	4.50
Portsmouth, O., ovens Connell., basis	4.50
Buffalo, ovens	7.50 to 8.00
Detroit, ovens	8.00
Philadelphia, del.	8.50

Iron Ore

LAKE SUPERIOR ORE

Gross ton, 51½%, Lower Lake Ports

Old range bessemer	$4.80
Mesabi bessemer	4.65
Old range nonbessemer	4.65
Mesabi nonbessemer	4.50
High phosphorus	4.40

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic, 56-63%, contract	7.50
Copper-free low phos. 58-65%	nom.

FOREIGN ORE

Cents per units, alongside docks Atlantic ports

Foreign manganiferous ore, 45-55% iron, 6-10% man.	8.50 to 9.00
North African low phos.	7.50 to 8.50
Swedish basic, 65%	7.50 to 8.00
Swedish low phos.	9.00
Spanish, North African basic, 50 to 60%	7.00 to 8.00
Newfoundland fdy., 55%	8.00
Tungsten, spot, short ton unit, duty paid	$10.25 to 10.50
Chrome ore, 48% gross ton c.i.f.	$17.00 to 18.00

Manganese Ore

Prices, not including duty, are cents per unit; cargo lots.

Caucasian, 52-55% (nom.)	24 cents
South African, 52%	22 to 23 cents
South African, 49-51%	21 to 22 cents
South African, 44-47%	20 to 21 cents
Indian, 48-50% (nom.)	22 cents
Brazilian, 46-48% (nom.)	18 cents

Refractories

FIRE CLAY BRICK

Per 1000 f.o.b. Works

First Quality

Pennsylvania, Ohio, Illinois, Kentucky, Maryland, Georgia, Alabama	$35.00
Missouri	35.00

Second Quality

Pennsylvania, Ohio, Illinois, Kentucky, Missouri, Maryland	25.00 to 30.00
Georgia, Alabama	30.00

SILICA BRICK

Pennsylvania	$35.00
Joliet and East Chicago	47.00
Birmingham, Ala.	50.00

MAGNESITE BRICK

Per Net Ton

Burned, 9 x 4½ x 2½	$61.50
Unburned, 9 x 4½ x 2½	52.00

CHROME BRICK

Per Net Ton

F.o.b. shipping point	$42.50

MAGNESITE

Dead burned grain, net ton, Chester, Pa., or Baltimore bases	38.00
Domes, Chewelah, Wash., base	20.90

Semifinished Steel

Prices Per Gross Ton

BILLETS AND BLOOMS

4 x 4-inch base

Pittsburgh, open-hearth	$26.00
Pittsburgh, bassemer	26.00
Youngstown	26.00
Cleveland	26.00
Philadelphia	31.75
Chicago	28.00
Forging, Chicago	33.00 to 34.00
Forging, Pittsburgh	33.00
Forging, Philadelphia	37.75

SHEET BARS

Pittsburgh	26.00
Youngstown	26.00
Cleveland	26.00
Chicago	28.00

SLABS

Pittsburgh	26.00
Youngstown	26.00
Cleveland	26.00

WIRE RODS

Pittsburgh, Cleveland	$37.00
Chicago	38.00

SKELP

All grades, Pittsburgh	1.50c to 1.60c

Ferroalloys

(In dollars, except Ferrochrome)

*Ferromanganese, 78-82%, tidewater, duty paid	$68.00
*Ferromanganese, del. Pittsburgh	73.24
Spiegeleisen, 19-20%, domestic fur. spot†	25.00
Ferrosilicon, 50 per cent, freight all., c. l.	77.50
Do, less carload	85.00
Do, 75 per cent	126.00 to 136.00
Silicomang., 2½% carb.	105.00
2% carbon	110.00
1% carbon	115.00
(The above for spot carlots. Contract price $5 a ton less).	
Ferrochrome, 60-70 chromium, 4-6 carbon, cts. lb. con. del.	10.00
Do, for spot delivery	10.50
Ferrotungsten, stand., lb. cont.	1.00 to 1.10
Ferrovanadium, 30-40 per cent, per lb. contained, on analysis	3.05 to 3.30
Ferrotitanium, c.l., prod. plant, frt. allow., net ton	137.50
Spot, 1 ton, frt., all., lb.	8.50
Do, under 1 ton	9.00
Ferrophosphorus, per ton, carload 17-19 per cent, Rockdale, Tenn., basis; 18%, $2 unitage	68.00
Ferrophosphorus, electrolytic per ton carload, 23-26% f.o.b. Anniston, Ala.; 24%, $4.25 unitage	91.00
Ferromolybdenum, stand. 50-60 per cent, per lb.	0.95
Cal. Molybdate, lb. cont.	0.80
Molybdate, lb. cont.	0.80

†Carloads. Differentials apply to quant.
*To users of carloads to 1000 tons annually. Differentials to large users.

Fluorspar

85 and 5 per cent grade

Washed gravel, f.o.b. Ill., Ky., net ton car loads	$12.00
Washed gravel, import duty paid tide, gross ton	19.50

Pig Iron

August Expected to Bring Improvement in Shipments—More Foundry Activity Anticipated

PIG IRON PRICES, PAGE 50

Pittsburgh—Blast furnaces are moving no more than a carload or two daily in this district, and sales are chiefly foundry grades. July goes down as a low point but does not foreshadow continued declines through August. Here and there a consumer shows interest in forward commitments. However, sales have not followed the general upturn in sentiment. Prices hold at $15, Pittsburgh district furnace, for all grades.

Boston—Except for the recent 700-ton inquiry which is expected to be closed shortly, little interest is apparent in the market. Reported offers of $15.50, delivered, for eastern Pennsylvania iron have tended to ease domestic quotations, although little actual business has been done.

New York—Better interest prevails in pig iron, although current orders are small and scattered, with prices soft. Buffalo iron for delivery in this district is being offered at $13.50 to $14, base, furnace, and eastern Pennsylvania foundry at $13.50, furnace, and less.

Philadelphia—The usual price of eastern Pennsylvania pig iron is $13.50, base, furnace, although concessions have been offered on some tonnage outside this district. Continental iron continues a depressing factor.

Buffalo—A distinctly better feeling prevails in the pig iron market. Producers anticipate an increase in sales during the next 60 days.

Youngstown, O.—Only three blast furnace stacks of the district's total of 32 are operating, so there is little fear of accumulating large yard stocks. In fact, stocks are relatively small. Output from the three active stacks goes into immediate consumption as hot metal. Intimations are heard of reviving interest among foundries, appearing in the form of inquiries for coke and pig iron.

Cleveland—Pig iron sales in July did not exceed 10 per cent of merchant furnace capacity, though shipments were larger than sales. Both sales and shipments were below the June average. August, however, according to sellers, is almost certain to provide some improvement in bookings and deliveries. Many foundries were closed in July; others practically idle. In numerous instances reports indicate better schedules for the coming month. Pig iron shipping instructions reflect this. Manufacturers of heating equipment are expected to be more active. September marks the period for larger pig iron demand from agricultural machinery builders. Repairs to railroad cars also will develop additional tonnage. Recent surveys made by pig iron sellers have created a feeling of confidence. Current sales and inquiries are light, and prices are unchanged.

Cincinnati—Inquiries for carload lots have increased, and shipping orders are better, both applying to a broad production field. In Cincinnati some encouragement was inspired by reports one machine tool maker is planning operations five days a week instead of two, partly because of automotive factory orders.

Chicago—Pig iron inquiry and sales showed a moderate gain during the past week. July shipments set a new low mark for the year and although the outlook is more favorable, immediate improvement is expected to be slight. Restricted operations of most foundries are accompanied by small stocks, and until schedules are heavier, buyers are expected to make commitments for only immediate needs. Prices are steady at $15.50, furnace, for No. 2 foundry and malleable.

St. Louis—July marked the low point of the year in pig iron sales. Specifications on contracts, however, were slightly heavier in July than June.

The leading local producer is operating at the same rate as during the past several months, and no change is contemplated. A resumption of activities at stove plants is looked for in the near future. One southwestern Missouri company has resumed production after being closed since last April.

Birmingham, Ala.—Pig iron shipments do not exceed output. Three blast furnaces are operating, one on foundry iron, one on spiegeleisen, and one on basic. Quotations are firm despite slack demand.

Toronto, Ont.—The Canadian pig iron markets are feeling the pinch of the summer holiday season. Sales are tapering.

Fluorspar $12 at Mines

Fluorspar Prices, Page 50

Chicago—Gravel fluorspar is quoted $12 per ton in carloads, f.o.b. Kentucky and Illinois mines, for the 85-5 per cent grade. The market recently was $13. Activity is almost entirely lacking and demand is limited to only occasional small lots in keeping with the restricted operations of iron and steel plants.

Coke

Movement Shows Little Change—A Few Foundries Replenishing Stocks—Prices Steady

COKE PRICES, PAGE 50

Pittsburgh — Although furnace coke is moving at about the same rate as the last three weeks, one or two foundries here are stocking a little more by-product coke. The price of foundry coke still is $3 to $4.25, depending on grade.

New York—It is expected foundry operations in August will show some improvement which should increase specifications for metallurgical coke. Beehive furnace coke for heating purposes is unchanged at $1.50 to $2, Connellsville; and $2 to $2.15 for smelting grades. Beehive foundry coke is $8.21 to $8.81, delivered Newark, N. J.; $10, New England; and $8.50, Philadelphia.

Chicago—Shipments of by-product foundry coke to most consumers were smaller in July than in June. Indications point to only moderate increases during August, but confidence is growing in prospects for better demand later in the year. The market is unchanged at $7, ovens, for outside delivery, and $7.75, delivered Chicago.

Cincinnati—Conditions in the by-product coke market are unchanged. Inventories are so low that any pick-up in the melt will be reflected in shipping orders.

St. Louis—According to by-product interests, July was the poorest month this year for new ordering and shipments of metallurgical coke. The price of foundry coke is unchanged at $7.57, delivered within the St. Louis switching district.

Birmingham, Ala.—Foundry operations do not warrant active coke buying. A few more than one-third of the ovens in this district are producing steadily.

Scrap

Market Steadies as Melting Need Seems Imminent—Steel Scrap for Canada Aids In East

Chicago—Considerable strength has developed in the tone of the iron and steel scrap market over the past week. Although activity has been confined principally to small lots and prices generally are unchanged, higher quotations are expected to develop upon the appearance of further gains in demand. Heavy melting steel recently has been quoted nominally at $4.50 to $5 and sales do not warrant any higher level at the moment. Canadian mills seeking scrap in this district have bid $5.50 but have been unable to obtain the tonnage sought. Mills have a fairly large accumulation of old material on hand and are slow to make new commitments in view of present operations. Inquiry for small lots is more active and such sales recently have been fairly nu-

Iron and Steel Scrap Prices

Corrected to Friday night. Gross tons delivered to consumers, except where otherwise stated

HEAVY MELTING STEEL

Birmingham	6.00	7.00
Boston, dealers	3.75	4.00
Buffalo, No. 1	6.50	7.00
Buffalo, No. 2	5.00	5.50
Chicago	4.50	5.00
Cleve., No. 1	6.50	7.00
Cleve., No. 2	6.25	6.75
Det., No. 1 deal.	3.50	4.00
Det., No. 2 deal.	2.00	2.50
E. Pa. del. mill	6.00	6.50
E. Pa., No. 2 del.	4.00	4.50
N. Y. deal. R. R.	2.85	4.00
N. Y. deal, No. 2	1.00	2.00
N. Y. deal. yd.	2.50	3.00
Pitts. No. 1	8.00	8.50
St. L. No. 1 sel.	5.50	6.00
Federal, Ill.	5.00	5.50
Granite City, Ill.	4.50	5.00
Valleys, No. 1	8.00	8.50

COMPRESSED SHEETS

Buffalo, dealers	5.00	5.50
Chi. (Factory)	3.50	4.00
Cleveland	6.50	7.00
Detroit, dealers	3.50	4.00
E. Pa. new mat.	5.00	5.50
Pittsburgh	7.50	8.00
Valleys	7.25	8.25

BUNDLED SHEETS

Buffalo	4.00	4.25
Cinci., del.	3.75	4.25
Cleveland	6.00	6.50
Eastern, Pa.		5.00
Pittsburgh	6.50	7.00
St. Louis	1.50	2.00

SHEET CLIPPINGS LOOSE

Chicago	2.00	2.50
Cincinnati	2.00	2.50
Detroit, dealers	1.25	1.75
St. Louis	1.50	2.00

STEEL RAILS SHORT

Birmingham	8.00	9.00
Boston, dealers	4.00	4.50
Buffalo	8.75	9.25
Chicago (3 ft.)	7.50	8.00
Chicago (2 ft.)	8.00	8.50
Cinci., deal.	8.00	8.50
Detroit, deal	7.00	7.50
Pitts. (open-hearth, 3 ft. and less)	10.00	10.50
St. Louis	7.50	8.00

STOVE PLATE

Birmingham	5.50	6.00
Boston, dealers	2.00	2.50
Buffalo	6.25	6.75
Chicago, net	4.50	5.00
Cinci., deal. net	3.25	3.75
Det., net deal.	2.50	3.00
Eastern Pa.	5.50	6.00
N. Y., deal. mill	1.75	2.00
St. Louis	5.50	6.00

COUPLERS, SPRINGS

Buffalo	9.00	9.50
Chicago	5.50	6.00
Eastern Pa.	7.50	8.00
Pittsburgh	8.50	9.00
St. Louis	6.00	6.50

ANGLE BARS—STEEL

Chicago	6.50	7.00
St. Louis	6.00	6.50

LOW PHOSPHORUS

Buffalo, billets and bloom crops	9.00	9.50
Cleveland bil. and bloom crops	9.00	10.00
Eastern Pa.	9.00	9.50
Pittsburgh billet bloom crops	10.50	11.00
Pitts., sheet bar crops	10.75	11.25

FROGS, SWITCHES

Chicago	4.50	5.00
St. Louis	6.00	6.50

SHOVELING STEEL

Chicago	4.50	5.00
Cleveland	6.25	6.50
St. Louis	4.50	5.00

RAILROAD WROUGHT

Birmingham	5.00	5.50
Boston, dealers	1.00	1.50
Buffalo, No. 1	4.25	4.75
Buffalo, No. 2	6.50	7.00
Cinci., No. 2	4.50	5.00
Chi., No. 1, net	4.00	4.50
Chicago, No. 2	4.50	5.00
Eastern, Pa.	6.00	6.50
N. Y., No. 1, deal.	2.50	3.00
Pitts., No. 2	8.00	8.50
St. Louis, No. 1	3.50	4.00
St. Louis, No. 2	4.50	5.00

SPECIFICATION PIPE

Boston	3.00	4.00
Eastern Pa.	7.00	7.50
N. Y., deal	2.00	2.25

BUSHELING

Buffalo, No. 1	5.00	5.50
Chicago, No. 1	3.50	4.00
Cinn., No. 1 dl.	3.75	4.25
Cinn., No. 2	2.25	2.75
Cleve., No. 2	4.00	4.25
Det., No. 1 new deal.	2.50	3.00
St. L., No. 1	3.00	3.50
Val. new No. 1	7.75	8.25

MACHINE TURNINGS

Birmingham	3.00	3.50
Boston, dealers	0.50	1.00
Buffalo	3.00	3.50
Chicago	2.00	2.50
Cin., deal.	2.75	3.25
Cleveland	3.00	3.50
Detroit	1.25	1.75
Eastern Pa.	3.00	3.50
N. Y., deal	1.35	1.50
Pittsburgh	5.00	5.50
St. Louis	1.50	2.00
Valleys	5.75	6.25

BORINGS AND TURNINGS For Blast Furnace Use

Boston, dealers	.60	.75
Buffalo	3.00	3.50
Cinn., deal.	2.75	3.25
Cleveland	3.50	4.00
Detroit, deal.	1.75	2.25
Eastern Pa.	3.00	3.50
N. Y., deal	1.35	1.50
Pittsburgh	4.50	5.00

CAST IRON BORINGS

Birming., chem.	12.50	13.00
Birming., plain	3.00	3.50
Boston, chem.	5.00	5.50
Boston, dealers	1.00	1.25
Buffalo	3.25	3.50
Chicago	2.00	2.50
Cinn., deal.	2.75	3.25
Cleveland	3.50	4.00
Detroit, deal.	1.75	2.25
Eastern Pa.	3.00	3.50
E. Pa., chem.	8.00	10.50
N. Y., deal.	1.00	1.50
Pittsburgh	4.50	5.00
St. Louis	2.75	3.25

PIPE AND FLUES

Cinn., deal.	3.00	3.50

RAILROAD GRATE BARS

Buffalo	4.00	4.50
Chicago, net	5.00	5.50
Cincinnati	3.50	4.00
Eastern Pa.	5.50	6.00
N. Y., deal.	3.50	4.00
St. Louis	4.50	5.00

FORGE FLASHINGS

Boston, dealers	2.00	2.50
Buffalo	4.00	4.50
Cleve. ov. 10 in.	6.50	7.00
Detroit	3.00	3.50

FORGE SCRAP

Boston, dealers	1.75	2.00
Chicago	7.00	7.50
Eastern Pa., del.	5.00	5.50

ARCH BARS, TRANSOMS

Chicago, net	4.50	5.00
St. Louis	5.00	5.50

AXLE TURNINGS

Boston, deal.	6.00	6.50
Buffalo	6.50	7.00
Chi., elec. fce.	4.00	4.50
Cleveland	6.50	6.75
Eastern Pa., del.	5.50	6.00
Pittsburgh, O. H.	7.00	7.50
St. Louis	3.50	4.00

STEEL CAR AXLES

Birmingham	9.00	9.50
Boston, ship. pt.	6.00	6.50
Buffalo	10.00	10.50
Chicago, net	7.00	7.50
Eastern Pa.		14.50
St. Louis	8.25	8.75

SHAFTING

Boston, ship. pt.	7.50	8.50
N. Y., deal.	6.50	7.00
St. Louis	7.50	8.00
E. Penna.	10.50	12.00

CAR WHEELS

Birming., iron	6.00	6.75
Boston, iron deal.	3.50	4.00
Buffalo, iron	7.00	8.00
Buffalo, steel	8.00	8.50
Chicago, iron	5.50	6.00
Chi., rolled steel	5.50	6.00
Cincinnati iron	6.00	6.50
E. Pa. steel	7.50	8.00
E. Pa. iron	8.00	8.50
Pitts., iron	8.50	9.00
Pitts., steel	8.50	9.00
St. Louis, iron	5.00	5.50
St. Louis, steel	5.00	5.50

NO. 1 CAST SCRAP

Birmingham	6.50	7.00
Buffalo (Mach.)	8.50	9.00
Buffalo, cupola	8.00	8.25
Boston, textile	7.00	7.50
Chicago, mach.	6.15	6.70
Chi., railroad, net	5.00	5.50
Chicago, agri., net	4.50	5.00
Cinn., mach. cup.	6.00	6.50
Cleve. cupola	6.50	7.00
Det., net deal.	6.50	7.00
E. Pa. cupola		9.00
N. Y., cup. deal.	5.00	6.00
N. Y., del. local foundries	7.50	8.00
Pitts., cupola	8.50	9.00
San Fran., del.	13.50	14.00
Seattle	5.00	7.50
St. L. No. 1 ma.	6.50	7.00
St. L., No. 1	6.00	6.50

HEAVY CAST

Boston, del.	2.75	3.00
Bost., mach. cast	7.00	7.50
Buffalo, break.	5.00	5.50
Cleve., break	3.50	4.00
Detroit, auto, net deal.	7.00	7.50
Det., break., dl.	3.75	4.25
Eastern Pa.	7.50	8.50
N. Y. No. 1, dl.	4.00	4.25
N. Y. break, dl.	3.50	4.00
Pittsburgh	7.75	8.25

MALLEABLE

Boston Consum.	6.00	6.25
Buffalo	7.50	8.00
Chicago, agri.	5.00	5.50
Chicago, R. R.	5.00	5.50
Cinci., R. R., del.	7.00	7.50
Cinci., agri. del.	6.50	7.00
Cleveland, rail	7.50	8.00
Det. auto deal.	5.00	6.00
St. Louis, rail	4.75	5.25

RAILS FOR ROLLING
5 feet and over

Birmingham	7.50	8.00
Boston, deal.	5.00	5.50
Buffalo	7.00	7.50
Chicago	6.50	7.00
Eastern Pa.		9.50
New York dealer	4.25	4.75
St. Louis	7.00	7.50

LOCOMOTIVE TIRES

Chicago, cut	7.00	7.50
St. L., No. 1	4.50	5.00

LOW PHOS. PUNCHINGS

Chicago	6.50	7.00
Buffalo	9.00	9.50
Eastern Pa.	9.50	10.00
Pittsburgh	9.00	9.50

merous. Quotations on some railroad grades are higher.

Boston—Consumers of No. 1 steel are practically out of the market and all grades are dull except buying for a 2500-ton export order of cast to go by water to Nova Scotia, the second in recent weeks. The New England rerolling bar mill will take most of the rails from the Boston & Worcester railroad. Prices show little strength with $2.75 to $3 offered for heavy breakable cast and $1.25 to $1.50 for stove plate.

New York—Four dollars, barge, was paid for No. 1 heavy melting steel for water shipment to the Hamilton district, Canada, about 5000 tons being included in the order. Boats are loading both here and in New Jersey. Other grades are dull, although some barge shipments are being made to the Delaware river of cast and stove plate, the loader paying about $4 for the former grade.

Philadelphia—While current business continues small, a stronger undertone is noted in the local scrap market. It is believed that anything like 30 to 40 per cent operations in the steel industry this fall would see a jump of at least $2 in the price of heavy melting steel in this district. For the first time in almost a month all grades of scrap are unchanged.

Buffalo—Demand for scrap continues small. No steelworks is buying and users of specialties also are indifferent. Prices are nominal but holders of scrap show less inclination to sacrifice tonnage.

Cleveland—While the iron and steel scrap trade in northern Ohio continues dull a more hopeful sentiment is prevalent. New business still is negligible, a few cars here and there; and shipments are not any better.

Cincinnati—Dealers here avoid short sales of iron and steel scrap in large lots, confident that prices have reached their lowest level. Supplies are plentiful but covering at these prices from yard stocks would not be conidered feasible. Buying is unimproved, but prices are unchanged and stronger.

Detroit—A much more optimistic feeling has come over the iron and steel scrap trade, due largely to a sympathetic reaction with other districts. It is believed that September will see material advances in the price of scrap. At the moment the market still is nominal, due to lack of demand and slack production.

St. Louis—Iron and steel scrap continues to mark time, but better sentiment is in evidence and prices are stationary. A few tentative inquiries have come out, several from users who have exhibited no buying ambition for many weeks. Only small tonnages are involved, and it is doubtful if the inquiry will crystallize into actual business for some time. The fact that complete apathy has passed is looked upon as a hopeful sign.

Pittsburgh—Higher scrap prices are a matetr of probability, with a mill purchase needed for affirmation. The Baltimore & Ohio railroad is selling 3100 tons of scrap today, which includes 600 tons of heavy melting steel. The Pennsylvania railroad's list is larger than last month and includes 8000 tons of No. 3 and No. 4 rail steel and 2550 tons of No. 1 heavy melting steel. About 1500 tons of cast iron car wheels are offered. Heavy breakable cast continues strong at about $8 but without quotable change in price.

Birmingham, Ala. — Demand for scrap is low, with no indications of early improvement. All quotations are considered nominal.

Toronto, Ont.—Demand for iron and steel scrap is spotty and specialized. No. 1 machinery scrap has a steady call but dealers find difficulty in obtaining supplies in the local markets. Stove plate and malleable are irregular and other iron grades are dull. Steel mills are out of the market. Dealers are carrying good stocks of most lines of scrap and are shipping little. Prices are unchanged.

Improved Tone in Ferroalloys Market

Ferroalloy Prices, Page 50

Prospects for higher ingot production over the next several months give a slightly better tone to the market for ferromanganese and spiegeleisen. Currently, purchases are light, consumers showing no disposition to stock material. It is understood the Ford Motor Co. will not buy more than half of the 700 tons of 26 to 28 per cent spiegeleisen for which it inquired for August-September. The company continues to figure on 500 tons of ferromanganese. Ferromanganese is steady at $68, duty paid; and domestic spiegeleisen, 19 to 21 per cent, continues $25, furnace.

Semifinished Steady; Two Valley Hearths Resume

Semifinished Prices, Page 50

Two additional open hearths were lighted in the Youngstown, O., district last week, one by Youngstown Sheet & Tube Co., at its Campbell works, and the other by the Republic Steel Corp. at its Lansingville plant. Shipments of semifinished steel in general conform to the low rate of consumption. Sales of billets, slabs and sheet bars are noteworthy only for showing the steadiness of prices at $26, base, Pittsburgh, Youngstown, O., and Cleveland. Billets sometimes are quoted $27, Youngstown or Cleveland. Forging billets hold at $33, and wire rods at $37.

Warehouse Selling Dull But Prospects Gain

Warehouse Prices, Page 56

New York—Warehouse volume continued at about the recent pace. Buying in all lines is light and prices, while deviating from time to time, show fairly good strength as a whole.

Boston—Most jobbers find July one of the dullest months of the year thus far, volume being light in all lines. Recent changes in hoops and bands were in extras only and a leading warehouse is quoting 3.75c for bands, 6-inch and narrower and 4.25c for over 6-inch. These are base prices. For hoops 4.90c is the base for the heavier and 5.40c for the lighter.

Philadelphia—Another dull week prevailed in the local warehouse market, with prices unchanged.

Pittsburgh—A better volume of inquiry is coming to warehouses but orders still are small. If sentiment is a forecast, next month should show improved billings. Prices are unchanged.

Cincinnati—Volume of warehouse business has shown a loss compared with June, but inquiries are becoming more plentiful, partly from prospective bidders on public works. Prices are unchanged.

Chicago—Sales show only slight change but prospects for improvement over the next several months are regarded by warehouses as considerably improved. Prices are steady and unchanged.

St. Louis—Business at iron and steel warehouses is suffering summer dullness, superimposed on depression conditions. The last half of July has proved to be about the worst in point of sales volume this year. Specifications, however, are holding up fairly well, and the outlook for materials in the building category is better.

Tax assessors of Lackawanna, N. Y., have increased valuation of Bethlehem plant in that Buffalo suburb from $21,500,000 to $34,460,456.

Nonferrous Mill Products

Base price cents per pound f.o.b. mill except otherwise specified. Copper and brass product prices based on 5.75c, Conn., for copper

Sheets	
Yellow brass (high)	12.00
Copper, hot rolled	14.87½
Lead sheets, cut, to jobbers	6.50
Zinc sheets (100-lb. base)	9.00
Tubes and Pipes	
Seamless yellow brass (high)	15.25
Seamless copper	14.37½
Rods	
Yellow brass (high, full turnings)	9.75
Naval brass	10.87½
Anodes	
Copper untrimmed	11.75
Wire	
Yellow brass (high)	12.00

Old Metals

Dealers' buying prices, cents lb.

No. 1 Composition Red Brass	
New York	2.25 to 2.50
Chicago	1.87½ to 2.00
Cleveland	2.50 to 2.75
St. Louis	2.00
Heavy Yellow Brass	
New York	1.25 to 1.50
Heavy Copper and Wire	
New York	3.25 to 3.50
Chicago, No. 1	3.00 to 3.25
Cleveland	3.00 to 3.25
St. Louis	2.50
Composition Brass Borings	
New York	2.12½ to 2.37½
Yellow Brass Tubing	
Cleveland	1.50 to 2.00
Light Copper	
New York	2.62½ to 2.75
Chicago	2.00 to 2.25
Cleveland	2.25 to 2.50
St. Louis	2.25
Light Brass	
Chicago	1.00 to 1.25
Cleveland	1.00 to 1.25
St. Louis	1.25
Lead	
New York	1.87½ to 2.12½
St. Louis	1.50 to 1.75
Zinc	
New York	0.75 to 1.00
Cleveland	0.75 to 1.00
St. Louis	1.00
Aluminum	
Clippings, new, soft, Cleve.	8.50 to 9.00
Clippings, hard, Cleveland	6.00 to 6.50
Borings, Cleveland	2.50 to 3.00
Mixed cast, Cleveland	3.25 to 3.75
Mixed cast, St. Louis	2.50 to 3.00

Secondary Metals

Remelt, aluminum No. 12	7.00 to 8.00
Brass ingots, 85-5-5-5	5.75

Metals

Lead Quotations Go Up $6 a Ton —Tin Also Rises—Copper, Zinc and Antimony Hold

New York—An advance of $6 a ton in pig lead last week added a note of cheerfulness in an otherwise dull metal market. Straits tin rose somewhat but copper, zinc, aluminum, antimony and nickel remained unchanged.

Copper—Demand from domestic consumers continued negligible last week. Custom smelters offered electrolytic metal for delivery through the end of the year at 5.25c, Connecticut. Mine producers quoted 5.37½c. Price cutting prevailed in the foreign market with Japanese sellers offering metal at as low as 4.40c, c.i.f. European ports. A firmer situation obtained at the close of the week, however. Anaconda and Katanga were reported selling at 4.50c. Formation of a new selling agency abroad was seen with the joint announcement of a cordial relationship between Anaconda and Katanga. The British imperial conference has taken no action as yet as to a tariff on the red metal.

Lead—The lead market showed a sudden reversal of its recent weakness last week. The advance began Tuesday with a rise of $1 a ton in the outside market. The following day witnessed a jump of $3 a ton in the contract price of the American Smelting & Refining Co. Outside interests raised their prices in line. A further jump of $3 occurred Thursday. Buying was well diversified. July sales were estimated to have topped those of June by 30 per cent.

Zinc—Quotations held unchanged last week but little test of the market was offered. A few scattered orders were placed at going quotations. Usually, prompt shipment was asked. The price on prime western ore averaged $15 a ton in the Tri-State area, off $5 a ton from the recent high.

Tin — Demand for Straits metal was light last week but prices showed a material advance over the preceding period. Pool operations abroad resulted in higher prices both here and in London.

Antimony—Listlessness characterized the market with prices remaining at recent levels.

Aluminum—Prices remained steady but no improvement in demand was encountered.

Quicksilver Price Steady

New York—Quicksilver prices are easy at $52, a virgin flask of 76 pounds, in small lots for prompt delivery. Sales are slack.

Coke By-Products

Per Gallon, Producers' Plants, Tank Lots

	Spot
Pure benzol	$0.20
90 per cent benzol	0.20
Toluol	0.30
Solvent naphtha	0.26
Commercial xylol	0.26
Per Pound at Producers' Plants in 250-Pound Drums	
Phenol	0.153 to 0.173
Per Pound at Producers' Plants	
Naphthalene flakes	3.75 to 4.75
Naphthalene balls	4.75 to 5.75
Per 100 Pounds Atlantic Seaboard	
Sulphate of ammonia	$0.85 to $0.90

100 Russian Stacks Active

With the blowing in of the second stack at Magnitogorsk, 100 blast furnaces are now active in Soviet Russia, according to the USSR chamber of commerce. Two more stacks at Magnitogorsk are to be blown in this year. A 1000-ton stack is being constructed in the Ukraine. The first Kuznetzk stack produced 19,398 tons in May.

Universal Concrete Pipe Co. has established a branch at Rochester, N. Y., in charge of Frank Emich.

Nonferrous Metal Prices of the Week, Cents a Pound

	Copper—Electro delivered	Copper—Lake delivered	Copper—Casting refinery	Straits Tin New York Spot	Straits Tin New York Futures	Lead N. Y.	Lead East St. L.	Zinc St. L.	Aluminum 98-99%	Spot Antimony	Ingot Nickel
July 23	5.25	5.37½	5.00	20.80	21.10	2.65	2.50	2.50	22.90	5.00	35.00
July 25	5.25	5.37½	5.00	20.65	20.87½	2.65	2.50	2.50	22.90	5.00	35.00
July 26	5.25	5.37½	5.00	20.80	21.02½	2.70	2.55	2.50	22.90	5.00	35.00
July 27	5.25	5.37½	5.00	21.05	21.25	2.80	2.70	2.50	22.90	5.00	35.00
July 28	5.25	5.37½	5.00	21.15	21.37½	2.95	2.85	2.50	22.90	5.00	35.00
July 29	5.25	5.37½	5.00	21.37½	21.62½	2.95	2.85	2.50	22.90	5.00	35.00

Pacific Coast

Better Sentiment Appears in All Markets Though Actual Buying Shows Little Gain—Ban on Foreign Steel and Iron May Be Set Up by Seattle, Aimed at Cast Pipe—Prices Hold Steady

San Francisco—(*By Air Mail*)—Although actual sales and inquiries have shown little increase, there is a better undertone and it is believed business is now on the upgrade. Important awards included 750 tons of plates for four gas holders for the Southern Counties Gas Co., Whittier, Calif., placed with the Chicago Bridge & Iron Works, and 330 tons of reinforcing bars for a crossing at Del Mar, Calif., booked by the Blue Diamond Co. The largest new inquiry calls for 1237 tons of reinforcing bars for a breakwater at Santa Monica, Calif., bids on which go in Aug. 5.

Awards of concrete bars exceeded 800 tons. Soule Steel Co. took 120 tons for a Kress store in Hollywood, Calif. This company also booked 370 tons for highway work in Los Angeles, count, Calif., reported in STEEL, July 18 as going to an unnamed interest. Los Angeles Iron & Steel Co. is low on 275 tons for San Gabriel dam No. 2 for Los Angeles county. Out-of-stock prices in San Francisco and Los Angeles districts are firm at 2.50c, base, in carload lots. Mild steel bars, little in demand, are quoted at 2.10c, c.i.f.

Pittsburgh-Des Moines Steel Co. was awarded 300 tons of plates for two tanks for a water system in Santa Clara, Calif. Bids will be opened Aug. 5 for 990 tons for toe protectors for the Santa Monica, Calif., breakwater, and Aug. 10 for 300 tons for a 740,000-gallon fuel oil tank for Mare Island, Calif. Prices hold generally at 2.00c, c.i.f.

May Ban Foreign Pipe

Seattle—Increased optimism prevails in the Pacific Northwest. While awards this week totaled only 300 tons, the outlook is more promising.

Seattle board of public works is considering a resolution restricting bids for public improvements to materials of American manufacture, unless otherwise specified. This is intended primarily to apply to American-made cast iron pipe, in which field importing houses have for three years obtained a large share of the awards.

Pacific Car & Foundry Co., Seattle, booked 240 tons of structurals for a state bridge over the Skykomish river, Wash., general contract to L. Romano Engineering Co., Seattle. Northwest Steel Rolling Mills is furnishing 50 tons of reinforcing for two concrete T-beam bridges in Chelan county, Washington. Concrete awards pending approximate 325 tons for local and state bridges.

The Seattle seawall project requiring 550 tons of reinforcing and 700 tons of cast iron pipe, will probably be up for figures in August. Bids will be opened Sept. 13 by the state for a bridge at Raymond, Wash., calling for 500 tons of shapes. Union Bridge Co., Portland, Oreg., is low bidder at $43,650 for a government bridge over the Umpqua river at the Veterans' home, Roseburg, Oreg. Bids for the Deep river bridge, Grays Harbor county, will be opened by the Washington highway commission August 16; estimated cost $125,000. Pacific Northwest public works awards last week totaled $574,968; the previous week $718,322.

Cast iron pipe inquiries are slightly more active.

Steel in Europe

Summer Quiet Dulls Market—British Exports Gain

London—(*By Radio*)—Quiet due to the midsummer holiday period is spreading and stocks of pig iron are accumulating. Some furnaces are planning to blow out until reserves have been reduced. A contract involving 5000 tons of steel for a bridge in India has been booked by British interests. Shipments of steel to India and the Argentine are improving, black sheets being a leader in exports.

The Continent reports keen competition for the small volume of business being transacted. Germany is successful in booking orders for black sheets. The French sheet bar syndicate has been completely organized and is ready to function.

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, July 28

Export Prices f.o.b. Ship at Port of Dispatch—By Cable (or Radio)

	British gross tons U. K. ports		Continental Channel or North Sea ports, metric tons Gold parity, $4.8665	
PIG IRON		£ s d		£ s d
Foundry, 2.50-3.00 Silicon	$10.27	2 18 6	$ 8.75 to $ 9.23	1 16 0 to 1 18 0
Basic bessemer	9.48	2 14 0*	6.80 to 7.29	1 8 0 to 1 10 0
Hematite, Phos. .03-.05	10.97	3 2 6	.....	.....
SEMIFINISHED STEEL				
Billets	$17.11	4 17 6	$9.23	1 18 0
Wire rods, No. 5 gage	26.33	7 10 0	21.87	4 10 0
FINISHED STEEL				
Standard rails	$27.20	7 15 0	$26.73	5 10 0
Merchant bars	.96c	6 2 6	.48c	2 4 0
Structural shapes	1.16c	7 7 6	.44c to .45c	2 0 0 to 2 1 0
Plates, †¼ in. or 5 mm	1.37c	8 15 0	.57c to .58c	2 12 0 to 2 13 0
Sheets, black, 24 gage or 0.5 mm.	1.26c	8 0 0	1.11c to 1.17c	5 1 0 to 5 6 0
Sheets, gal., 24 gage, corr.	1.49c	9 10 0	1.49c	6 15 0
Bands and strips	1.22c	7 15 0	.72c to .74c	3 5 0 to 3 7 6
Plain wire, base	1.49c	9 10 0	1.18c	5 7 6
Galvanized wire, base	1.81c	11 10 0	1.38c to 1.40c	6 5 6 to 6 7 6
Wire nails, base	1.73c	11 0 0	1.21c	5 10 0
Tin plate, box 108 lbs.	$ 2.63	0 15 0	$3.20	0 13 2

British ferromanganese $68 delivered Atlantic seaboard, duty-paid. German ferromanganese £9 0s 0d ($43.74) f.o.b.

Domestic Prices at Works or Furnace—Last Reported

	£ s d		French Francs		Belgian Francs		Reich Marks	
Fdy. pig iron, Si. 2.5	$10.27	2 18 6	$ 8.21	210(2)	$ 8.73	315	$16.37	69
Basic bessemer pig iron	9.83	2 16 0*	7.04	180(1)	7.20	260	17.92	75.50
Furnace coke	2.28	0 13 0	4.85	124	3.74	135	4.56	19.20
Billets	17.55	5 0 0	14.47	370	9.56	345	22.90	96.50
Standard rails	1.31c	8 7 6	1.25c	697	1.57c	1,210	1.37c	127
Merchant bars	1.04c	6 12 6	.95c	530	.51c	395	1.19c	110
Structural shapes	1.37c	8 15 0	.99c	550	.51c	395	1.16c	107.50
Plates, †¼-in. or 5 mm	1.41c	9 0 0	1.17c	650	.67c	515	1.37c	127
Sheets, black	1.30c	8 5 0§	1.44c	800‡	.86c	665‡	1.56c	144‡
Sheets, galv., corr., 24 ga. or 0.5 mm	1.53c	9 15 0	2.83c	1,570	1.78c	1,370	4.00c	370
Plain wire	1.49c	9 10 0	2.03c	1,130	1.95c	1,500	1.92c	178
Bands and strips	1.49c	9 10 0	1.04c	580	.86c	660	1.37c	127

*Basic. †British ship-plates, Continental, bridge plates. §24 ga. ‡1 to 3 mm. basis price.
British quotations are for basic open-hearth steel. Continental usually for basic-bessemer steel.

Steel, Wrought and Cast Iron Pipe, and Tubing

Welded Iron, Steel Pipe

Base Price $200 Ton

Base Discounts on steel pipe, Pittsburgh and Lorain, O., to jobbers in carloads. Indiana Harbor, Ind., and Evanston, Ill., 2 points less. Chicago del., 2½ points less. Wrought pipe, Pittsburgh base.

BUTT WELD

	Steel			Iron	
In.	Blk.	Gal.	In.	Blk.	Gal.
½	58	44½	½	25	7
¾	62	50½	¾	30	13
1—3	64	52½	1—1¼	33	17
			1½—2	37	20

LAP WELD

2	57	45½	2	25	11
2½—6	61	49½	2½—3½	30	15
7—8	58	45½	4—6	32	19
9—10	56	43½	7—8	31	18
11—12	55	42½	9—12	28	13

BUTT WELD

Extra strong, plain ends

½	55	44½	¼ & ⅜	+11	+46
¾	60	49½	½	25	9
1—1½	62	51½	¾	30	14
2—3	63	52½	1—2	36	20

LAP WELD

Extra strong, plain ends

2	55	44½	2	31	15
2½—4	59	48½	2½—4	36	22
4½—6	58	47½	4½—6	35	21
7—8	54	41½	7—8	33	19
9—10	47	34½	9—12	23	10
11—12	46	33½			

To large jobbers these discounts on steel pipe increased on black by 1 point and two discounts of 5 per cent; on galvanized by 1½ points with two 5 per cents. Direct mill shipments, base, 5 and 2½. On iron pipe large jobbers obtain additional discount of 1 point with 5 and 2½ per cent on black and galvanized.

BOILER TUBES

Carload discounts, f.o.b. Pittsburgh

Lap Welded Steel		Charcoal Iron	
2—2¼	38	1¾	8
2½—2¾	46	2—2¼	13
3	52	2½—2¾	16
3¼—3¾	54	3	17
4	57	3¾—3½	18
4½—6	46	4	20
1½	1	4½	21

On lots of a carload or more, above base discounts subject to preferential of two 5 per cent discounts on steel and 10 per cent on charcoal iron. Smaller quantities subject to following modifications from base discounts.

Lap Welded Steel—Under 10,000 pounds, 6 points under base and one 5 per cent; on 10,000 pounds to carload, 4 points under base and one 5 per cent; on 10,000 pounds to carload, 4 points under base and two 5 per cents. Charcoal Iron—under 10,000 pounds, 2 points under base; on 10,000 pounds to carload, base and one 5 per cent.

STANDARD COMMERCIAL SEAMLESS BOILER TUBES

COLD DRAWN

1 inch	61	3	46
1¼—1½	53	3¼—3½	48
1¾	37	4	51
2—2¼	32	4½, 5, 6	40
2½—2¾	40		

HOT ROLLED

2—2¼	38	3¼—3½	54
2½—2¾	46	4	57
3	52	4½ 5, 6	46

Subject to 5 per cent supplementary discount for carload lots. On less than 10,000 pounds, base discount reduced 6 points. On 10,000 pounds to carload, base discount reduced 4 points and one 5 per cent allowed. No extra for lengths up to and including 24 feet. Sizes smaller than 1 inch and lighter than standard gage to be held at mechanical tubes list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

Seamless Tubing

Cold drawn; f.o.b. mill discounts

Random lengths over 5 ft. 55%
Selected lengths, 1—18 ft. 53%

Cast Iron Water Pipe

Class B Pipe—Per Net Ton

Six-inch and over, Bir. ....$32.00 to 33.00
Four-inch, Birmingham .... 36.00 to 37.00
Four-inch, Chicago ..... 38.40 to 42.40
Six to 24-inch, Chicago..... 34.40 to 38.40
Six-inch and over, N. Y... 30.00 to 32.50
Four-inch, New York ..... 34.50 to 36.50
Stand. fittings, Bir. base.... $100.00

Six to 24-inch, base; over 24-inch plus $20; 4-inch, plus $10; 3-inch plus $20; gas pipe fittings, $5 higher. Class A pipe $4 higher than Class B.

Warehouse Quotations at Leading Centers, in Cents Per Pound

(All Philadelphia prices subject to quantity differentials except reinforcing and Swedish bars)

STEEL BARS

Baltimore	2.75c
Boston	3.25c
Buffalo	2.95c
Chattanooga	3.00c
Chicago	2.75c
Cincinnati	3.00c
Cleveland	2.75c
Detroit	2.85c
Houston	2.65c
Los. Ang.	3.30c
New York‡(d)	3.10c
Philadelphia	2.45c
Pittsburgh	2.60c
Portland	3.00c
San Fran.	3.25c
Seattle	3.00c
St. Louis	3.00c
St. Paul	2.85c
Tulsa	3.25c

IRON BARS

Baltimore	2.75c
Boston	3.25c
Buffalo	3.15c
Chattanooga	3.00c
Chicago	2.75c
Cincinnati	3.00c
Detroit	2.85c
New York‡(d)	3.10c
Philadelphia	2.45c
St. Louis	3.00c
Tulsa	3.25c

REINFORC. BARS

Baltimore	2.35c-3.00c
Boston	3.10c-3.25c
Buffalo	2.95c
Chattanooga	3.00c
Cincinnati	3.00c
Cleveland	2.10-2.25c
Detroit	2.85c
Houston	3.00c
Los. Ang. cl...	2.10c
Los Ang., lcl	2.40c
New York	2.65c-3.10c
Phila.	2.26½c
Pittsburgh	2.60c
San Fran. cl.	2.50c
San Fran. lcl	2.80c
Seattle	3.00c
St Louis	3.15c
Tulsa	3.25c
Young.	2.30c-2.60c

SHAPES

Baltimore	2.75c
Boston	3.35c
Buffalo	3.20c
Chattanooga	3.20c
Chicago	3.00c
Cincinnati	3.25c
Cleveland	2.95c
Detroit	3.10c
Houston	3.25c
Los. Ang.	3.30c
New York(d)	3.10c
Philadelphia	2.45c
Pittsburgh	2.85c
Portland	3.00c
San Fran.	3.15c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.25c
Tulsa	3.50c

PLATES

Baltimore	2.75c
Boston	3.35c
Buffalo	3.20c
Chattanooga	3.20c
Chicago	3.00c
Cincinnati	3.25c
Cleveland, ¼-in. and thicker	2.95c
Clev., 3/16-in.	3.20c
Detroit	3.10c
Det., 3/16-in.	3.10c
Houston	3.00c
Los Angeles	3.30c
New York(d)	3.30c
Philadelphia	2.45c
Phila. floor	5.10c
Pittsburgh	2.85c
Portland	3.00c
San Fran.	3.25c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.25c
Tulsa	3.50c

NO. 10 BLUE

Baltimore	3.25c
Boston	3.50c
Buffalo	3.45c
Chattanooga	3.50c
Chicago	3.20c
Cincinnati	3.30c
Cleveland	3.00c
Detroit	3.35c
Houston	3.35c
Los Ang.	3.60c
N. Y.	3.00c
Portland	4.00c
Phila.*† (e)	2.90c
Pitts.**	3.00c
San Fran.	3.50c
Seattle	4.00c
St. Louis	3.45c
St. Paul	3.45c
Tulsa	3.70c

NO. 24 BLACK

Balt.*†	3.50c
Boston	4.20c
Buffalo	3.70c
Chattanooga	3.65c
Chicago	3.55c
Cincinnati	3.75c
Cleveland	3.25c
Detroit	3.50c
Los Ang.	4.20c
New York	3.75c-4.00c
Phila.*†(e)	3.40c
Pitts.**	3.40c
Portland	4.50c
San Fran.	4.05c
Seattle	4.50c
St. Louis	3.80c
St. Paul	3.695c
Tulsa	4.75c

NO. 24 GAL. SHEETS

Balt.*†	4.00c
Boston	4.75c
Buffalo	4.05c
Chattanooga	3.95c
Chicago	4.10c
Cincinnati	4.25c
Cleveland	3.75c
Detroit	3.75c
Houston	4.25c
Los. Ang.	4.50c
New York	4.00c-4.10c
Phila.*†(e)	3.75c
Pitts.**	3.90c
Portland	5.00c
San. Fran.	4.55c
Seattle	5.00c
St. Louis	4.35c
St. Paul	4.19c
Tulsa	5.10c

***BANDS**

Baltimore	3.25c
Boston	3.75c
Buffalo	3.30c
Chattanooga	3.20c
Chicago	2.95c
Cincinnati	3.20c
Cleveland	3.00c
Det. 3/16-in. & lighter	3.15c
Houston	3.65c
Los Ang.	3.80c
New York(d)	3.30c
Philadelphia	2.75c
Pittsburgh	2.95c
Portland	3.50c
San Fran.	3.65c
Seattle	3.50c
St. Paul	3.20c
Tulsa	3.45c

***HOOPS**

Baltimore	3.25c
Boston	4.90c
Buffalo	3.95c
Chicago	3.50c
Cincinnati	3.75c
Cleveland	3.65c
Det. No. 14 & lighter	3.30c
New York	3.30c
Philadelphia	3.00c
Pittsburgh	3.60c
Seattle	5.00c
St. Paul	3.75c

*New extras apply.

COLD FIN. STEEL

Rounds & Hexagons

Baltimore (c)	3.30c
Boston	3.60c
Buffalo	3.00c
Chattanooga*	3.65c
Chicago	3.00c
Cincinnati	3.32c
Cleveland	2.95c
Detroit	3.15c
Los Ang. (a)	4.25c
New York	3.39c
Philadelphia*	3.35c
Pittsburgh	2.95c
Portland (a)	4.50c
San Fran.(a)	4.25c
Seattle (a)	4.50c
St. Paul (a)	3.20c
St. Louis	3.36c
Tulsa	4.65c

Flats and squares 50c extra, except Tulsa, where 5.14c is quoted. (a) Rounds, hex, only.

COLD ROLL. STRIP

Boston 0.100 in., 500 lb. lots	5.30c
Buffalo	5.25c
Chicago (soft) (b)	5.65c
Cincinnati	5.80c
Cleve. (b)	5.55c
Detroit	5.40c
Phila. (c)	4.55c
New York	4.55c

(b) Net base straightening, cutting, boxing 1 ton or more.

(c) Plus mill, size and quantity extras.

(d) Minus quant. diff.

(e) New mill classif.

‡Domestic bars.

*Plus quan. extras.

**Less than 25 sheets.

*†50 or more bundles.

Construction and Enterprise

CONCISE, TIMELY BUSINESS BUILDING OPPORTUNITIES IN FIELD OF INDUSTRY

New York

ENDICOTT—U. S. Forging & Machine Co. has been incorporated with 100 shares no par value to operate a machine shop, by J. F. Thomas, Rochester, N. Y.

NEW YORK — Universal Chromium Plating Corp. has been incorporated with $10,000 capital by H. I. Sobel, 33 West Forty-second street, New York.

NEW YORK—Dulein Steel Products has been incorporated with 200 shares no par value to manufacture machinery, by H. Shemin, Woolworth building, New York.

NEW YORK—Firedoor Mfg. Corp. has been incorporated with $5000 capital to manufacture fire protection devices, by L. Himmelfarbe, 1440 Broadway.

NEW YORK—Lane Iron Works has been incorporated with 200 shares common stock to manufacture metal products, by Baar, Bennett & Fullen, 29 Broadway.

YONKERS—Havey & Hayes has been incorporated with $20,000 capital to operate a machine shop here.

New Jersey

ATLANTIC CITY—United Iron & Metal Co. Inc. has been incorporated with $125,000 capital to deal in metals and waste materials, by Edward I. Baker, Atlantic City.

JERSEY CITY—Federal Metal Products Corp. has been incorporated with $2500 capital to manufacture metal products, by Prentice Hall, Jersey City.

NEWARK—Essex Metal Alloy Co. Inc. has been incorporated with 100 shares common no par stock, to smelt and refine metals, by Milton Stern, 60 Park place, Newark.

NEWARK—Sully Tire Tool Corp. has been incorporated with 1000 shares no par value to manufacture automotive accessories, by Philip L. Coffin Jr., 64 Park avenue, East Orange, N. J.

Pennsylvania

HARRISBURG — Pennsylvania railroad, main offices Broad Street Station building, Philadelphia, will build a larger station at the Enola yards, near here, for handling less-carload shipments in portable containers. It will cost about $130,000.

PHILADELPHIA—L. F. Zittel Co. has been incorporated with $5000 capital to operate a plant for finishing, plating and polishing metals, by Leo F. Zittel, 1737 North Newkirk street, Philadelphia.

PHILADELPHIA — Superior Auto Radiator Co. has been incorporated with $5000 capital and 100 shares no par value to manufacture automotive and airplane radiators and automotive accessories, by Marcus Shotz, Twenty-second and Malvern avenues, Chester, Pa.

SOUTH GREENSBURG—Kirk Interlock Co. has been incorporated with $5200 capital to manufacture interlocks and similar devices, by K. S. Nevin, Greensburg, Pa.

Ohio

AKRON — Lutheran hospital, care R. A. Ryder, superintendent, is having plans drawn for a boiler plant addition to cost $20,000, one story, 45 x 60 feet. Fichter & Brooke, 275 West Market street, Akron, are architects.

ST. BERNARD—Board of Education, high school building, will take bids until August 6 for boilers, stokers, soot blowers, breeching and engine to completely revamp the power plant. James E. Branson, Cincinnati, is engineer.

Southern States

WASHINGTON—Bids will be received until August 2 by department of supplies and accounts, navy department, for 1300 boiler tubes for delivery at Mare Island navy yard, California, schedule 8392 and 13 valve-reseating outfits for same delivery, schedule 8393.

WASHINGTON—Bureau of supplies and accounts, navy department, will receive bids until August 2 on schedule 8411 for one gasoline engine driven industrial truck and trailer, for delivery to Sewall's Point, Va.; to August 9 on schedule 8510 for 60 pneumatic scaling hammers for delivery to Mare Island, Calif.

NEW ORLEANS—M. G. Cox Shipyards Inc. has been organized by M. G. Cox, with capital of 800 shares no par value.

Machinery

General Optimism Fails To Produce Equipment Orders

New York—A slightly more optimistic feeling prevails among dealers in machinery and equipment. This is due in part to several industrial plant inquiries, exclusive of government work, the first to appear in several weeks. While orders are few, the outlook is brightened by these concrete inquiries covering a varied number of tools, some of the heavier type. A local dealer is low on two of the three radial drills for Brooklyn navy yard opened last week. Bids close Aug. 9 on a shearing, gap-splitting and squaring machine for Brooklyn and a precision lathe for the same point Aug. 16.

Pittsburgh—The steel mill equipment market is as dull as it has been for the last several weeks. This applies to both new equipment and replacement work. There is a rising interest in 3-high mills with at least two steel mills in the valley district considering a purchase. One producer in this district is at present building its own 3-high mill, the particular advantages of which can be appreciated under present conditions when a 3-high mill can be used for both roughing and finishing.

Worcester, Mass.—Machine and equipment builders continue to operate on curtailed schedules with light backlogs and few current orders, generally limited to one or two units at a time. General industrial interest in equipment is at a low ebb, but government inquiries continue to come out steadily, a good number for the eastern navy yards. Resumption of activity on the part of many New England textile mills is an encouraging factor for makers of textile machinery. A local shipyard is reported considering possibility of installing equipment for the production of large size welded steel pipe. Bids close Aug. 9 on two precision toolmakers' lathes for the Portsmouth navy yard and two drilling machines for Newport.

Cleveland—Despite the current wave of better feeling which appears to have swept over business in general, little tangible evidence of its effect is noted in the machinery field. Inquiries are at a low point and sales are sparse. Used machinery is difficult to move. However, the outlook is clearing and prospects for fall business in equipment lines are somewhat more favorable.

Chicago—Activity in machine tools and plant equipment as yet finds but slight reflection of the moderate improvement noted in general business sentiment. Machine tool sellers find some satisfaction in a slight increase in orders for repair parts recently, but anticipate no early increase in new tool purchases. Orders continue in reduced volume, generally consisting of individual items, although one interest recently purchased three small tools including two new lathes.

LARGEST BUILDERS OF THE WORLD'S LARGEST CRANES

Alliance Products

STANDARD CRANES
Up to 430 tons capacity

STRIPPING CRANES
Up to 320 tons capacity

COMBINATION CHARGERS and STRIPPERS
Up to 200 tons capacity

Ladle Cranes
Ingot Strippers
Soaking Pit Cranes
Open Hearth Charging Machines
Slab and Billet Charging and Drawing Machines
Gantry Cranes
Ore and Coal Bridges
Car Dumpers
Forging Manipulators
Steam Drop Forge Hammers
Coke Pushers, Levelers and Door Lifters
Coal Pier Equipment
Rolling Mill Machinery
Cement Plant Machinery
Dock Handling Equipment
Coke Oven Equipment

271 of 100 Tons Capacity and over

LADLE AND STANDARD CRANES

59		100 tons
2	WORM DRIVEN Ladle,	100 tons
2		115 tons
6	WORM DRIVEN Ladle,	125 tons
45		125 tons
30		150 tons
3	WORM DRIVEN Ladle,	150 tons
6	WORM DRIVEN Ladle,	160 tons
2	WORM DRIVEN Ladle,	165 tons
4	WORM DRIVEN Ladle,	175 tons
27		175 tons
3	WORM DRIVEN Ladle,	200 tons
4		200 tons
5		225 tons
1		250 tons
3	WORM DRIVEN Ladle,	250 tons
3	WORM DRIVEN Ladle,	275 tons
1		275 tons
1		300 tons
3		430 tons

STRIPPING CRANES

8		100 tons
1		125 tons
21		150 tons
19		200 tons
1	Single Ram,	320 tons

COMBINATION CHARGERS AND STRIPPERS

3		100 tons
1		125 tons
3		150 tons
4		200 tons

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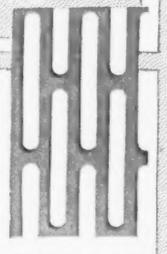

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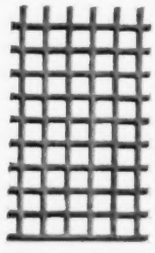

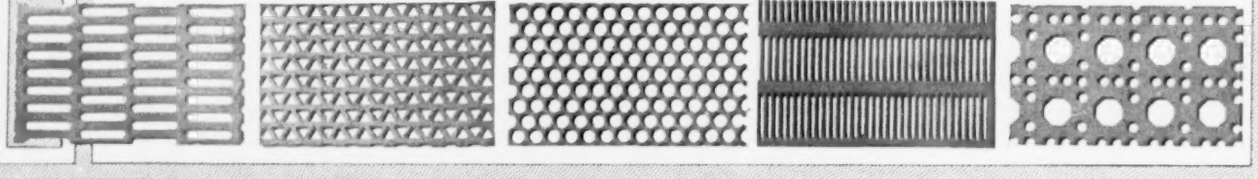

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